

JUN-8 1949
©ClB 194302

AMERICAN JOURNAL OF ORTHODONTICS

OFFICIAL PUBLICATION OF
THE AMERICAN ASSOCIATION OF ORTHODONTISTS,
ITS COMPONENT SOCIETIES, AND
THE AMERICAN BOARD OF ORTHODONTICS



Editor-in-Chief

H. C. POLLOCK, ST. LOUIS, MO.

Sectional Editors

CHARLES R. BAKER, Evanston, Ill.

HENRY COSSITT, Toledo, Ohio

JOSEPH D. EBY, New York City

HENRY F. HOFFMAN, Denver, Colo.

JAMES D. McCOY, Beverly Hills, Calif.

OREN A. OLIVER, Nashville, Tenn.

PAUL G. SPENCER, Boerne, Texas

Associate Editors

DENTISTRY FOR CHILDREN

WALTER T. McFALL, Asheville, N. C.

ABSTRACTS AND REVIEWS

J. A. SALZMANN, New York City

PUBLISHED BY THE C. V. MOSBY COMPANY, ST. LOUIS 3, U. S. A.

TABLE OF CONTENTS ON PAGE 2

Copyright 1949 by The C. V. Mosby Company

Vol. 35

MAY, 1949

No. 5



Putting Trouble On The Spot...

FRANKLY, we are not in the equipment business. Yet, the Dee HEATREAT Unit is a logical auxiliary to that perfection in final results... the objective of Dee research.

Every soldering or other application of heat to precious metal necessarily alters its physical construction in spots... developing areas that are not uniform.

Gold-platinum alloys definitely respond to heat treating. Thus, the simplified Dee HEATREAT Unit, with a brief immersion of the appliance, eliminates spot differentials and restores uniformity throughout the entire structure.

Please ask for literature fully illustrating and detailing the simplified operation of this unit... also for copy of the Dee Physical Properties Chart.

GENERAL OFFICES AND PLANT
1900 WEST KINZIE STREET..



REFINERS & MANUFACTURERS
.. CHICAGO, 22, ILLINOIS

BAKER ORTHODONTIC WIRES

MADE WITH COMPLETE SCIENTIFIC CONTROL OF ATMOSPHERE,
MELTING AND ANNEALING TEMPERATURES

Q-A WIRE

Q-A is our best temperable platinum colored wire! Made in all gauges for all purposes. Tough, hard, never brittle from heat or overworking. For fine springs especially. Everyone who has tried it like it.

HIGH FUSING

High Fusing, our best non-oxidizing gold colored wire. For universal use. Where you need the highest quality light gold colored wire.

THREE PER CENT

For all purposes. Phenomenal strength. Low fusing point makes it easy to ball. Nice resilience without heat treating. Should not be put in tempering device because of its low elongation when hardened.

SUPER ORALIUM

Super Oraliium for bending at red heat. Splendid for shaping over model at red heat. This does not injure its remarkable properties. No acid affects it. Tempers when cooled slowly in air.

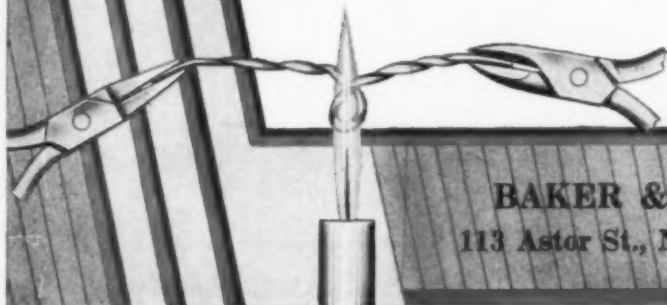
ORALIUM

Oraliium for economy. Lowest priced good temperable wire. High palladium content. Neutral color. Do not over temper nor leave in contaminated hydrochloric acid. Great tensile strength when cooled slowly. Light in weight.

ORTHOCLASP

Orthoclasp, 100% precious metal, pure platinum colored wire. Heat of your flame won't melt it nor will it oxidize nor become brittle. You can neither temper nor soften it. No other wire like it. Many men use it universally, others for body wire and retainers only.

Let us send you self-addressed order pad, literature and prices.



BAKER & CO., INC.
113 Astor St., Newark 5, N. J.

CONTENTS FOR MAY, 1949

American Journal of Orthodontics

Original Articles

Your American Association. Lowrie J. Porter, D.D.S., New York, N. Y.	331
Principles Involving Extraction in the Successful Treatment of Cleft Palate Conditions. Jos. D. Eby, D.D.S., New York, N. Y.	342
Extraction and Nonextraction in Identical Tw'ns. Edward A. Cheney, D.D.S., M.S., Lansing, Mich.	351
The Primary Dentition and Dentofacial Orthopedics. Dallas R. McCauley, B.S., D.D.S., Beverly Hills, Calif.	364
Case Report. Dallas R. McCauley, D.D.S., Beverly Hills, Calif.	373
Case Report. Dallas R. McCauley, D.D.S., Beverly Hills, Calif.	377

In Memoriam

Thomas Oscar Gorman	381
---------------------------	-----

Oren A. Oliver Testimonial and Seminar	383
--	-----

Orthodontic Abstracts and Reviews

Orthodontic Abstracts and Reviews	386
---	-----

News and Notes

News and Notes	395
----------------------	-----

Officers of Orthodontic Societies

Officers of Orthodontic Societies	406
---	-----



"I don't care if all the other girls ARE wearing them—your teeth are perfectly straight and you don't need braces!"

Doctor: This cartoon very definitely points up the fact that children are conscious of the benefits of Orthodontics. In the belief that you may wish to frame this copy for your Reception Room, we have arranged with the Syndicate for right of this reproduction. Extra Planograph copies will be sent on request.

GENERAL OFFICES AND PLANT
1900 WEST KINZIE STREET..



REFINERS & MANUFACTURERS
.. CHICAGO, 22, ILLINOIS



IN TO STAY

Will Henry assert his manhood and put the Little Woman in her place? Will the L. W. finally succumb to the masterful male, hand him his hat and wish him godspeed? Don't be silly. The poor guy hasn't any more chance of tearing himself loose from the bosom of his family than an inlay fastened with S-C Cement has of breaking away from a tooth. If you want to know how impossible that is, ask any of the thousands of dentists who have standardized on S-C.

Better still, just mail the coupon (in your professional envelope, please) and we'll send you a FREE SAMPLE.

S-C CEMENT



A FREE BOOKLET that gives "The Low-Down on a High Quality Dental Cement" is available. If you would like a copy of this informative publication, check the attached coupon.

STRATFORD-COOKSON COMPANY
4058 Haverford Avenue, Phila. 4, Pa.

Please send me the following, without any charge or obligation:

☐ S-C CEMENT Sample ☐ CEMENT Booklet

Dr. _____

Address _____

Université De Montréal

Faculty of Dental Surgery

Graduate Course in Orthodontics

The next graduate course in orthodontics will begin on September 15, 1949.

Any request for information regarding this course should be sent to:

Doctor Paul Geoffrion, Vice-Dean,
Head of the Orthodontic Department,
Université de Montréal,
2900 Mount Royal Boulevard,
Montreal (26), Que. CANADA.

Recent Books

A DOCTOR TALKS TO TEEN-AGERS

Subtitled, "A Psychiatrist's Advice to Youth," this book is aimed at youth itself, in the same easy style. It tells the teen-ager how to establish integrity and purpose in life. 379 pages. \$4.00.

By WILLIAM S. SADLER, M.D., F.A.P.A., Consulting Psychiatrist, Chicago, Illinois.

ADOLESCENCE PROBLEMS

Written in simple, non-scientific language for parents, teachers, doctors—for anyone interested in the problems of youth. 466 pages. \$4.75. By WILLIAM S. SADLER.

Synopsis of PSYCHOSOMATIC DIAGNOSIS AND TREATMENT

Emotions are universal, and the last decade in medicine has shown that any illness has its psychosomatic side. Disillusioned patients have come in for more than their share of sympathy—here's a book with sincere feeling and some very surprising information for the doctor whose responsibility it is to cope with these patients.

By FLANDERS DUNBAR, M.D. With collaboration of other Members of the Staff of the Departments of Medicine and Psychiatry, Columbia-Presbyterian Medical Center, New York, City. 501 pages. \$6.50.

Technique of Treatment for the CEREBRAL PALSY CHILD

By PAULA EGEL, Director of the Cerebral Palsy Children's Hospital, Buffalo, New York. With an introduction by WINTHROP M. PHELPS, M.D. 180 pages, 129 illustrations. \$3.50.

THE C. V. MOSBY COMPANY
3207 Washington Blvd. St. Louis 3, Mo.

NEY BAND MATERIALS



Tough and Strong.....easier to work

You can save time and eliminate many potential sources of appliance trouble by using Paliney Band Materials. They are high fusing and non-oxidizing and can be soldered safely without special precautions. While ductile and easy to adapt, they possess exceptional toughness and strength to accept service stresses without tearing.

Not the least of their virtues are lightness and economical cost. All in all, we believe that no better band material specifications can be found for your precision work. In addition to band material in 12" lengths, Ney also manufactures Seamless Molar Bands, Special Contoured Molar Bands and Curved Cuspid Bands.

Paliney Hard for molar anchor bands

Paliney Medium Hard for anterior bands

only \$2.00 per dwt. at the unit rate



THE J. M. NEY COMPANY • HARTFORD 1, CONNECTICUT

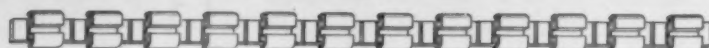
12NY49

Perfect Precision, Strength and Sanitation in Faster Operating Time:

TRU-CHROME EDGEWISE MATERIAL with SPOTWELDING

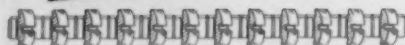
NEW

TRU-CHROME EDGEWISE MOLAR BRACKET



Twice the width of the Tru-Chrome Anterior Edgewise Bracket, this new Bracket has all the superior points of Tru-Chrome appliances . . . made of a special alloy developed for its purpose . . . unvarying precision in size . . . hardness to resist any abuse . . . strength to meet any test . . . tissue-tolerant and resistant to mouth solutions . . . permanently applied in much faster operating time . . . supplied in strips of 12 scored for easy detachment and flanged for rapid spotwelding.

TRU-CHROME EDGEWISE MATERIAL:



MOLAR BRACKETS	\$3.00 per doz.
Welded to Tru-Chrome Band Material..	4.00 per doz.
ANTERIOR BRACKETS	\$2.50 per doz.
Welded to Tru-Form Bands.....	5.00 per doz.
Welded to Tru-Chrome Band Material..	3.50 per doz.
WELDING JIG which centers Anterior Bracket perfectly on Band Material	\$2.50 per set
FLANGED TIE-EYELETS , on handles.....	.50 per 100
BUCCAL TUBES , long or short.....	\$2.50 per doz.
STRAIGHT RECTANGULAR WIRE , 14" lengths, .0215 x .025 and .0215 x .028	
	\$1.10 for 4 lgs, \$3.30 for 12, \$15 for 6 dz., \$28 gross
TRU-SPOT WELDER , f.o.b. Denver.....	\$65.00
WELDER with a Dial-a-Weld Automatic Timer	\$90.00

ROCKY MOUNTAIN METAL PRODUCTS CO.

1450 Galapago Street

Box 1887, Denver 1, Colo.

Pacific Coast Distributor: Karl A. Kreis, Flood Building, San Francisco 2, California
Atlantic Coast Distributor: Gilbert Thrombley, 220 West 42nd St., New York 18, N. Y.



There is an apparent discrepancy

The pages are either missing or

The filming is recorded as the b

ncy at this point.

or the pagination is incorrect.

book is found in the collections.

American Journal of ORTHODONTICS

(All rights reserved)

VOL. 35

MAY, 1949

No. 5

Original Articles

YOUR AMERICAN ASSOCIATION

LOWRIE J. PORTER, D.D.S.,* NEW YORK, N. Y.

THE most important step in the unification of orthodontics to permit a steady advancement of this specialty has been the formation of your American Association of Orthodontists, which occurred nearly fifty years ago.

Before entering into the present status and duties and objects of this association, I would like to go slightly into the historical background of its formation, to show you that the advancements in orthodontics since that time have been chiefly improvements in the understanding of etiology and diagnosis through research, rather than new developments in technical ideas.

The early history of actual orthodontic treatment dates back to about 1700, although there are some slight orthodontic corrections mentioned previous to that time.

Dr. Bernhard W. Weinberger's two-volume historical review of the origin and evolution of orthodontics deals with the early history of dentistry up to 1530, the early history of orthodontics up to 1870, and finally to its culmination as a specialty in 1899. Dr. Weinberger deserves great credit for the historical data which he has so carefully recorded and from which I gather the following facts.

Between 1728 and 1888 there were sixty-six excellent textbooks written on dentition and the irregularities of the teeth. It is interesting to study this period and to see that Fauchard, in 1728, used a strip of metal for a labial arch while in 1757 Bourdet modified this, using a strip of gold from molar to molar, with holes drilled in it, through which strings were passed to tie around each tooth for regulating purposes. These were tightened twice each week. This was used on the labial of the upper teeth and on the lingual of the lower.

Before 1850, inclined planes had been used to jump inlocked upper incisors over the lowers; bites were raised with gold caps on the molars; and arches had been attached to these gold caps.

Presented at the meeting of the Southwestern Society of Orthodontists, Fort Worth, Texas, March 13-16, 1949.

*President of the American Association of Orthodontists.

In 1844, headcaps were used "to correct protrusion of the underjaw." This must have been done on young children, for Westcott says, "The clasps were first attached to the first permanent molars—the second molars not having made their appearance."

During the next fifty years, removable lingual arches were used for expansion. By 1854 coil springs were used on labial arches, much the same as we use today, and labial arches were also used with threaded ends and nuts, similar to Angle's E arch. Soon after that coiled springs were used for lingual expansion of arches. Magill made and cemented bands for rotation; Farrar advocated tipping roots to upright teeth; Kingsley was jumping the bite forward and holding it, "until it became firmly established."

In 1886, Talbot used the first removable lingual appliance attached to molar bands. He soldered cups or horizontal tubes to the bands and made a lingual appliance of piano wire, coiled at some point and the ends sprung into the cups; Kirk had attempted to stabilize molar anchorage with a palatal plate while using a labial arch and ligatures. Coil springs were used in the palate on lingual appliances by How in 1891; Kingsley used headcaps with rubber bands to correct protrusions; Bonwill was using buccal elastics from the molar teeth to the anterior teeth to correct protrusion, and by 1893 Baker had used intermaxillary elastics for interjaw relationships. Case had designed various types of appliances for definite root movements, and Lindenberger was using removable lingual arches attached to split tubes on the molar bands.

Extraction had been an accepted procedure in orthodontic treatment. Dr. Edward H. Angle, the so-called "father of orthodontics," showed illustrations in 1890 and 1899 in the *Dental Cosmos* of closing spaces after extraction of first premolars.

Jackson had demonstrated the advantages of auxiliary springs on lingual appliances as opposed to the labial arch and ligatures, and Bogue had made his appeal for early treatment in the deciduous dentition.

So, we can readily see that practically all the appliances in use today or the principles back of them were developed and used before 1900. Since then they have been refined and perfected and variations in more skillful methods have been developed.

Treatment has greatly improved, but perhaps the most outstanding advancement has been the fuller realization of the limitations of treatment, and this has been largely during the past ten years.

By 1900, orthodontics was coming into its own and beginning to be recognized as a specialty. You are all familiar with the progress of orthodontics since Dr. Angle's time, but it is interesting to note the influence of Dr. Angle on the formation of the first orthodontic society.

In 1887, Dr. Angle read a paper on "The Angle System" at the Ninth International Medical Congress in Washington, D. C.

The discussion of this paper resulted in a heated argument on the priority of ideas submitted, rather than in dealing with its value to orthodontics and the effectiveness of his suggested methods of treatment. This discussion resulted in enmities and bitterness between those present, and in some cases bitterness

continued right through to death. This antagonistic reception may have had much to do with Dr. Angle's conclusions given twelve years later.

Several dental schools were teaching orthodontics in the junior and senior years, which resulted in Dr. Angle's becoming interested in orthodontics from the time he graduated. He held university teaching positions at various times between 1885 and 1899, during which time he became convinced that dentistry and orthodontics were fundamentally distinct from each other. In 1899 he stated, "If orthodontics is to make any material progress, a separate school, entirely independent of dental schools, must be formed, which would amply provide opportunity for those with aptitude and liking for the subject to study in a broad, thorough and comprehensive manner."

Dr. Angle was unable to influence the dental school faculties to have "special departments devoted exclusively to the study and practice of orthodontics." This resulted in his giving a private course of instruction in his office in St. Louis in 1899 to four men, Lindas, Mercer, Pullen, and Watson.

That was just fifty years ago next November.

The next year, 1900, he started a school of orthodontics with eleven students, and at this time the necessity for an orthodontic society was discussed and a temporary organization was formed.

The following year, in June, 1901, the first annual meeting of the Society of Orthodontists was held, with Dr. Angle President and Dr. Watson Secretary, but I understand that Dr. Richard Summa was the man behind the wheel who did a large part of the original organizing in the formation of this society. Angle's first class of eleven men became the charter members of the society, so the actual formation of this society was directly due to the Angle School of Orthodontia.

I believe the fundamentals of Dr. Angle's teaching have had much to do with the stability of our specialty, for his applicants for the school had to pass preliminary examinations in dental histology, the anatomy of the throat, nose, and jaws, and on tooth form. The student had to have a knowledge of biology, embryology, histology, and anatomy.

The student had to learn the true concept of the line of occlusion and balance of forces, which Dr. Angle believed was the foundation upon which all orthodontic treatment should be based.

Whether we all agreed with Dr. Angle or not, we must admire his strict teachings of fundamentals as they knew them at that time. He believed that until his students knew what normal was they could not study and understand the abnormal in the dental arches and jaws and faces and the causes of forces and function which produced abnormal growth of the face and dentures.

When the American Society of Orthodontists was started, all but two of the eleven charter members were graduates of the Angle school. Dr. Angle probably did more than anyone else to cause a definite separation of orthodontics from the general practice of dentistry and to bring about its recognition as a definite specialty.

In Dr. Angle's president's address at the first meeting, he said, "This meeting marks the beginning of something grand, so noble, something destined

to so elevate dentistry in general and so greatly benefit humanity, that even we who are assembled here this morning do not yet dream of its importance."

In giving his reasons why orthodontics should be a specialty, Dr. Angle said it is a great science; is so radically unlike dentistry that the two can never be combined; and "its ultimate separation is inevitable and the sooner it is encouraged and becomes firmly established, the better it will be for both and infinitely better for humanity at large." He also said, "If this is inevitable, then it is fitting and proper that this society should be established, for our best efforts can only yield the best fruit in strong, earnest, sincere, concerted action."

I like his final, impressive words when he said, "In conclusion, let me try to impress upon you that in proportion as we are sincere, broad, liberal, honest, earnest and studious, will our efforts be successful and the prosperity of this society be insured; and on the contrary, in the proportion as narrowness, selfishness and that bane and cause of dry rot of most societies—politics, be permitted to enter here, so will the efficacy of this society be blighted."

And so this society was formed with the following objects: to advance the science and art of orthodontics; to encourage and sponsor research; to strive for higher standards of excellence in orthodontic instruction; to contribute its part in dental health service; and to promote fraternal relationship among its members.

The first society of orthodontists was formed in 1901, although the name American Society of Orthodontists was not adopted until 1902.

From a start of eleven charter members in 1901, the American Society of Orthodontists grew to 165 members in 1918. Thirty years later, in 1948, the membership was 903.

At the Third Annual Meeting in 1903, Dr. Watson, the president, recommended that "the membership be confined to teachers and those in the exclusive practice of orthodontics," for the members up to that time had not all limited their practices to orthodontics.

In 1905, a resolution was introduced to the effect that all members of the society should not pay commissions of any kind to one who referred patients to them. This resolution was not well received by some members, and it resulted in a split-up of the society from 1906 to 1914.

During the next few years innovations in appliance technique had developed to an exceptionally fine degree. Mershon introduced the removable lingual appliance attached with half round tubes and posts; Lourie presented the high labial arch; Angle improved his ribbon arch to the edgewise mechanism; Johnson developed the twin arch; Atkinson, the universal appliance; and Tweed's philosophy of treatment had been presented. Research has gone far past any previous expectation. In fact, the whole of dentistry and medicine in this country has developed far more than in any other country in the world.

In 1926, the First International Orthodontic Congress was held in New York, with the American Society of Orthodontists taking the major role in establishment and planning.

The Second International Congress was held in London in 1931. Economic conditions and wars have prevented holding another international congress since that time, but an international luncheon is to be held at the 1949 meeting in New York to discuss the possibility of another international orthodontic congress.

In 1935, the American Society of Orthodontists was changed to a national association with seven sectional orthodontic societies as component parts, and the name was then changed to the American Association of Orthodontists.

Until that time, any person in the world who had specialized in orthodontics for a period of three years could apply for active membership. Since that time, active membership can be obtained only through active membership in a component society, none of which take in territory outside of the United States and Canada.

A great spirit of friendship has been manifest for many, many years in this organization, which was demonstrated in the Inter-American Congress in New Orleans in February, 1943.

By 1948, this society had grown to such proportions that the constitution and bylaws were changed and amended, one of the important and most sound changes being the formation of a nominating committee for the careful selection of future officers. Making the directors from all sections a part of this nominating committee will tend to create a greater feeling of unity throughout the national organization.

Our specialty has changed greatly in regard to treatment. We have been through great swings of the pendulum, but foremost in this great society is that spirit of friendliness, cooperation, and a great unity of desire for the best in orthodontics for our patients; this is possible only because we live in a free country, in which progress has not been hampered.

I sincerely hope that politics, which Dr. Angle stated "was the dry rot of most societies," may forever be foreign to our thoughts and desires and that the next fifty years of this great organization will see us going steadily and unitedly forward in the fundamental research and sound thinking which are so essential for our continued progress and which should be possible if outside political influences do not force this "dry rot" upon us.

Up to the present time, the historical review of this association is most satisfactory and pleasing because of its uninterrupted forward progress, but when looking into the future, we cannot help but have a frightening feeling, for here we are in 1949 facing a new political phase in our profession, which in this free country has always been foreign to our American way of thinking and living. We are confronted with a possible change in our private enterprise system which can be a vicious, socialistic strangle hold on our professional progress. A political control of the health services of this country is going to result in a definite deterioration of efficiency and progress in the health care of the citizens of our country. It is our sacred duty to do our utmost to help educate the people to a realization of the fact that this country has the highest standards and the greatest efficiency in medical and dental health care of any

country in the world. We and they must see to it that our economic freedom is protected and that we shall not be subjugated to tyrannical methods of socialistic political controls. This is a much bigger problem than just your future and mine. It is the future health of our children and that of all of the people of this nation that is at stake, and it is a question of the future freedom of dental and medical progress.

The medical profession in this free country has been able in the past few years to increase the average life expectancy about twenty years. We have been able so to combat diseases that were formerly fatal, such as diphtheria, typhoid, smallpox, and malaria, that there has been a tremendous reduction in mortality. Epidemics have practically been eliminated. Dentistry has made marvelous strides in dental health care and education. Certainly no criticism can be made of the sacrifices of our physicians and dentists. We lack enough physicians and dentists to care for all of the people properly, but federal control is not going to increase the number of medical and dental practitioners.

In the February, 1949, issue of the *New York State Dental Journal* is an article by Dr. Harold Hillenbrand, Secretary of the American Dental Association, in which he states the following facts:

1. Estimates indicate that the U. S. population will increase twenty-three million between 1940 and 1960.
2. The national net income from 1940 to 1947 increased from 77 billion to 200 billion dollars.
3. The dental students in colleges increased only from 7,700 students in 1940 to 8,800 in 1947. In 1947 only 1,600 dentists were graduated. In 1948 it was cut to 1,400 because pre dental students were refused deferment during the war.

The population increase, the increase in income, and the furtherance of education are demanding more health care, but the dental profession is not able numerically to keep up with this demand.

Compulsory health insurance is going to increase demands which even now cannot be met. This insurance plan is not going to increase the number of dentists. First of all, university facilities must be increased. Last year, according to Dr. Hillenbrand, the colleges had 17,000 dental applicants but were able to take only 3,000 new students. The physicians and dentists are overworked now, so how can they do more even if the government controls the professions?

If the Veterans Administration dental program cannot be run efficiently, how could a national, politically controlled health program be efficient? Listen to this: In May, 1948, Dr. Hillenbrand said:

The Veterans Administration dental program is bogged down at the national level, enmeshed in red tape, tied down by outmoded rules and stuffy administration. The impractical policies currently followed result in lost time for both veteran and dentist. The long delays in authorizing treatment frequently result in serious damage to health. The time between diagnosis and treatment is sometimes so long that the diagnosis may be completely altered. The dental examination form is unnecessarily complicated in red tape. It is so enchanted by its blanks and forms that it is unable to see that behind these blanks and forms are human beings who need and want dental treatment.

This is undoubtedly a small sample of what we would get in a much worse fashion under a nationalized public health program.

In England, I understand, the physicians are so flooded with hypochondriac patients that they do not have time to take care of the really sick people. It is said that physicians are having to take care of from fifty to one hundred patients a day and that they are only able to give from four to six minutes for the average complete examination, diagnosis, and treatment of a patient. *Collier's*, in the March 5, 1949, issue, contains a firsthand report by one of their editors, Lester Velie, on England's socialized medicine. He makes the following statement:

To enter London's great Westminster Hospital for a tonsillectomy, a school child must wait, on the average, fifteen months. A woman requiring urgent gynecological surgery must wait seven weeks. So jammed are the free hospitals that many families, even those in modest circumstances, prefer to pay the high cost of child bearing in the surviving nursing homes rather than take their chances in state institutions.

Now listen to how our neighbor Canada feels about the National Health Service Act of Great Britain.

In the summer of 1948, the Canadian Dental Association made a study of dental service in Great Britain. After this report had been studied by their Health Insurance Committee, the following resolution was passed by this committee at their meeting in Toronto on Nov. 8, 1948:

Though it is the desire of this Committee to do its utmost to plan for the improvement of the dental health of the Canadian people, it is our duty to state that in our studied opinion, the implementation of a plan similar to the National Health Service Act of Great Britain by the Government of Canada would ultimately prove to be a *regression* rather than an advancement in the dental health standards of the people of Canada.

Yet this is the type of service which is being fostered by some as a good health plan for the people of our country.

You have all read of the three practically identical compulsory health insurance bills introduced in congress recently, which have been referred to three different committees, apparently to avoid their being bottled up in a single committee. Compulsory health insurance is not the answer to our public health problem. Government control is going to stifle freedom, and the individual incentive will be greatly hindered by lack of desire to follow the latest professional research and progress, for there will be no chance to build up private practices for those who participate in a national health insurance program or to increase their remuneration through better service. It is going to result in poorer medical and dental care. It is going to be a catastrophe for the people and will be a tremendous setback to the progress of our profession.

This proposed health plan may not affect the average dentist from a monetary standpoint, for in England the yearly average dental income has increased, but we are not looking at this scheme from a monetary standpoint. Instead, we approach it with a true thought of protecting the public from having health care services deteriorate in quality from a federal control of the professions, with bureaucratic limitations on just when and what type of treatment could be given to our patients and only providing such treatment were approved by a political committee.

The government plan in the United States is to place our medical and dental services under a federal security agency together with the United States Public Health Service, Social Security, and Food and Drug Administration, at Cabinet level, with a layman as its head. The American Dental Association representative at a committee hearing stated that this would be the same as placing "a man untrained in law as attorney-general."

I firmly disagree with any plan for federal bureaus to control health care programs, but if they ever do, they should certainly fully realize that medical care is a separate issue and should not be placed in the same department with education and social welfare. The Hoover Commission rather approves a separate department including public health, Food and Drug Administration, and Veterans Administration medical care. This suggestion has been approved by spokesmen for the American Medical Association, the American Dental Association, and the Association of American Physicians and Surgeons.

Such a department should have a physician as the head and a dentist as the first immediate assistant to head a definite separate dental bureau within the health department.

Millions of underprivileged people are now getting the best of medical care absolutely free from private or publicly supported hospitals and from doctors of the highest skill. This program can be enlarged with the help of some federal funds granted to states or smaller political divisions, to be spent properly, under the supervision of the medical profession which has already demonstrated its ability efficiently to care for many millions, even with drastic financial restrictions. Why, then, rush into an enforced, compulsory socialization with its inevitable mediocrity and inferior service through hasty performance?

The chief objection to present-day medical and dental care is the over-all cost for health services. For any type of adequate health care we must have more professional men. Since the selling price of all commodities in a democracy is adjusted by competition in which costs are leveled off through supply and demand, the cost of health services will be lowered in proportion to the number of practitioners available. Thus the first step toward more and cheaper health care is the increase in university facilities for dental and medical education.

One of the three practically identical health bills may come up for discussion during this spring, so our opposition to the present plan must be vigorously given at once, for it is highly possible that this country may be subjected to socialized medicine and dentistry such as have been gross failures in other countries. We too may go through that experiment of politically controlled health services. I would like to quote a few lines from an article by Dorothy Thompson which appeared in the *New York Daily Mirror* on the day after Christmas, 1948.

It seems certain we are going to take another step on the road to bureaucratic collectivism by the passage of a compulsory health bill to which President Truman is pledged.

I have lived under such medical systems in England, Austria, and Germany and they are awful. They cost the people far too much, provide inferior services at a high price, are incapable of dealing with really serious and complicated cases.

The great joker in all these schemes is that they are put forward as free—something for nothing. Let their proponents at least tell the truth.

Every worker in this country will have the cost subtracted from his pay envelope and added to the price of every thing he buys. When and if he gets ill, he will find himself as one of fifty patients—half of them hypochondriacs—whom a physician must examine in an hour.

And if he really is ill—and finds that under the slap happy methods of overworked doctors, he gets no better but worse—he finally will in desperation consult one of those private physicians, who refuse to join the assembly line, and atop all he has already put up, week by week, he will pay a private fee. How do I know all this? Because I have experienced it!

So the duty of each member of our profession is to fight for professional freedom. Government assistance can well be given in research, in enlarging university facilities for the education of more physicians and dentists, and in increasing salaries to obtain better university teachers. Public health education in *preventive* medicine and dentistry would be a great asset to our people, but control of the health professions by politicians must be prevented. It is our emphatic duty not only to write letters of protest to all of our representatives and senators, but also, through education, to influence all of our patients and our friends and relatives to do the same. We should contact those in positions of public leadership, such as educators, health departments, chambers of commerce, parent-teacher associations, and community leaders. If we would each write to ten friends and have them write to ten others and so on, urging them to write to their senators and representatives opposing this health plan, we would have a good chance of beating this legislation in Congress. The legislators know that most physicians and dentists do not approve of this plan, so try especially also to get your personal friends immediately to do more writing, talking, and educating. At a later date the A.D.A. will inform the dentists of the proper time to write their congressmen in regard to specific bills in the legislature. This must be done to counteract the socialistic lobbying and propaganda which is blinding our public from the realization of the truth of the actual facts involved concerning the possible dangers to their future health.

Socialism has never improved medical service in any country and probably never will. If we are going to prevent a socialization of these professions, it is going to take the combined effort and enthusiasm of us all, and every one of us must work hard and work every minute. The American Medical Association has been trying recently to work out a plan for general health care. It may not be perfect and some of the medical men believe it is far from perfect, but we must not just sit back and oppose this or any other voluntary insurance plans. We must open-mindedly look them over and help to improve them. We must not let the politicians, while we are battling among ourselves, force an inefficient compulsory plan upon us. We do not have to have this un-American scheme forced upon us if enough men and women have the courage to stand up and fight it.

The oldest medical society in New York, The Westchester Medical Society, on Feb. 15, 1949, voted 249 to 1 in opposition to "the Congress imposing upon the citizens of this nation any form of compulsory health insurance system of

medical care designed for national bureaucratic control." Every medical and dental society should pass similar resolutions and have them sent to every member of the Congress immediately! The medical nationalizers are better organized, more active, and more determined than at any time in the past.

When a time has arisen in our American life that our government is attempting to shackle controls on our profession and to raise taxes to the point of confiscation to balance a budget created by tremendous government waste and inefficiency, you can be sure that socialization of medicine, if accomplished, will not be the end, but will merely be the beginning of socialization of other great industries, and our American freedom will have ended.

So the actions of you and me and this association have far greater boundaries than just protecting our own professions. We must not neglect this, our sacred duty, to fight for freedom. But our duties go even farther than that. We must not stop there, for the public must have better health care than heretofore. Greater public health programs must be developed, and this means in orthodontics as well as general dentistry and medicine. These should be state-sponsored and under the direction of the doctors who are capable of handling them.

Orthodontics has now become bigger than just the straightening of teeth. It has grown to be a large, important, and vital health service, which must be available to the entire public.

The United States has some individuals and families who are not possessed of the resources to enable them to pay for adequate medical care. Provision must be made for them through public funds or philanthropy. They could not be covered by compulsory insurance, for they would not have the means to attain and maintain insurance.

The lower-income groups must have good health care in clinical programs at costs commensurate with their incomes. But the large majority of American families could pay for adequate medical care if they would give it a higher priority than many needless luxuries which they buy every day.

At the present time, there are several states which have definite, working health programs for the dental and medical care of underprivileged children. New York State is now in its fifth year of such a program, and, as a member of the Orthodontic Advisory Committee to both the New York State and the New York City Departments of Health, it is my privilege to report to you that not only are these health departments very happy about the efficient handling of this program but they are also greatly pleased with the results obtained in this method of rehabilitating crippled children. They also report that there is a definite feeling of justification by the city and state in this application of a portion of the taxpayers' money for this worthy purpose.

Health programs must be established but they must not be under federal, political subjugation and financed by enforced taxation, to be squandered through inefficient management.

We—you and I and your American Association of Orthodontists—are the ones who must help to plan and carry on these health programs if they are to

function advantageously and efficiently from the orthodontic standpoint. Let us dedicate ourselves and renew our pledges to the objects of this association—to advance orthodontics, sponsor research, strive for higher standards, and contribute its part in dental health service, for by these endeavors, your American Association of Orthodontists will continue in the progressive vein which has been the aim of the association since its founding.

You have all had notices and your programs about the next annual meeting of the American Association of Orthodontists to be held in New York in May. The program is full of papers, clinics, and discussions on the most vital topics of present-day orthodontics. It will be a profitable, outstanding "take-home" meeting, and you will also find a great spirit of friendliness waiting there for you. Friendship, the motto of Texas, is also a known characteristic of the whole American Association of Orthodontists, and you will find that true spirit of friendship when you come to New York next May, for all of the members of the Northeastern Society of Orthodontists will be waiting at the Hotel Commodore to welcome you and greet you; they will be your genial hosts.

Don't fail them, or yourself, or your American Association!

41 EAST 57TH STREET.

PRINCIPLES INVOLVING EXTRACTION IN THE SUCCESSFUL TREATMENT OF CLEFT PALATE CONDITIONS

JOS. D. EBY, D.D.S., NEW YORK, N. Y.

IT IS a genuine privilege to be able to present for your consideration at this time some fundamental facts concerning the orthodontic phase of cleft palate conditions and some sound principles to be followed in their successful treatment. This is particularly true because it has been planned as a supplement to the paper of our guest speaker, Douglas B. Parker, M.D., D.D.S., with whom I have been associated in this work over a period of many years. His messages are always conservative, sound, sane, true, and full of knowledge. Truly it may be said he is one among us and very sympathetic to and appreciative of *our part* in this vital teamwork. As a specialist in oral surgery, Dr. Parker has attained the zenith of his career, with a record number of operations on cleft lips and palates, as well as other complex forms of face and jaw surgery. Having been born the son of an outstanding dentist, it is seemingly inherent within him to have maintained a keen interest in the progress of all branches of dentistry, and he has not allowed his broad vision to be eclipsed by the confines of his own specialty.

It may therefore be said of Dr. Parker that no one can be in any better position to evaluate in their relative proportions the importance of the properly combined roles to be performed by surgery, orthodontics, and prosthodontics in bringing cleft palate cases to a maximum improvement with benefits in usefulness, health, appearance, and that invaluable sense of personal security. While the road is long and oftentimes discouraging, what a wonderful thing it really is to contemplate the value and the reward within the combined grasp of these three specialties in such a reclamation service to mankind.

Dr. Herbert Conway, Chief of the Division of Plastic Surgery, New York Hospital, and Clinical Professor, Cornell University School of Medicine, is a thorough student of the cleft palate problem, and an expert in its surgical care. In a paper entitled, "Care of the Cleft Palate," published in *Surgical Clinics of North America*, April 1940, New York number, he outlines the following facts:

"The complete care of the child with a cleft palate presents problems which call for attention, not only during infancy and the immediate postoperative period, but also throughout childhood and adolescence. . . .

"Recent statistics compiled from the records of the New York Hospital show that from September 1, 1932 to December 1, 1938 (6 yrs. and 3 mos.) there were 22,513 babies born, of which 589, or 2.61 percent, had some form of congenital deformity. Cleft lip or cleft palate, or both, were present in thirty-two cases (.014 percent of all births). Deformities of the lip and palate comprised 5.43 percent of the 589 congenital deformities of all types. That the clefts of the lip and palate make up the major portion of deformities of the head and neck is confirmed by Dr. W. B. Davis' report of 1,000 deformities of the head and neck, of which 938 were classified as cleft of the lip or palate or both."

Read before the Northeastern Society of Orthodontists, Tuesday, November 23, 1948.

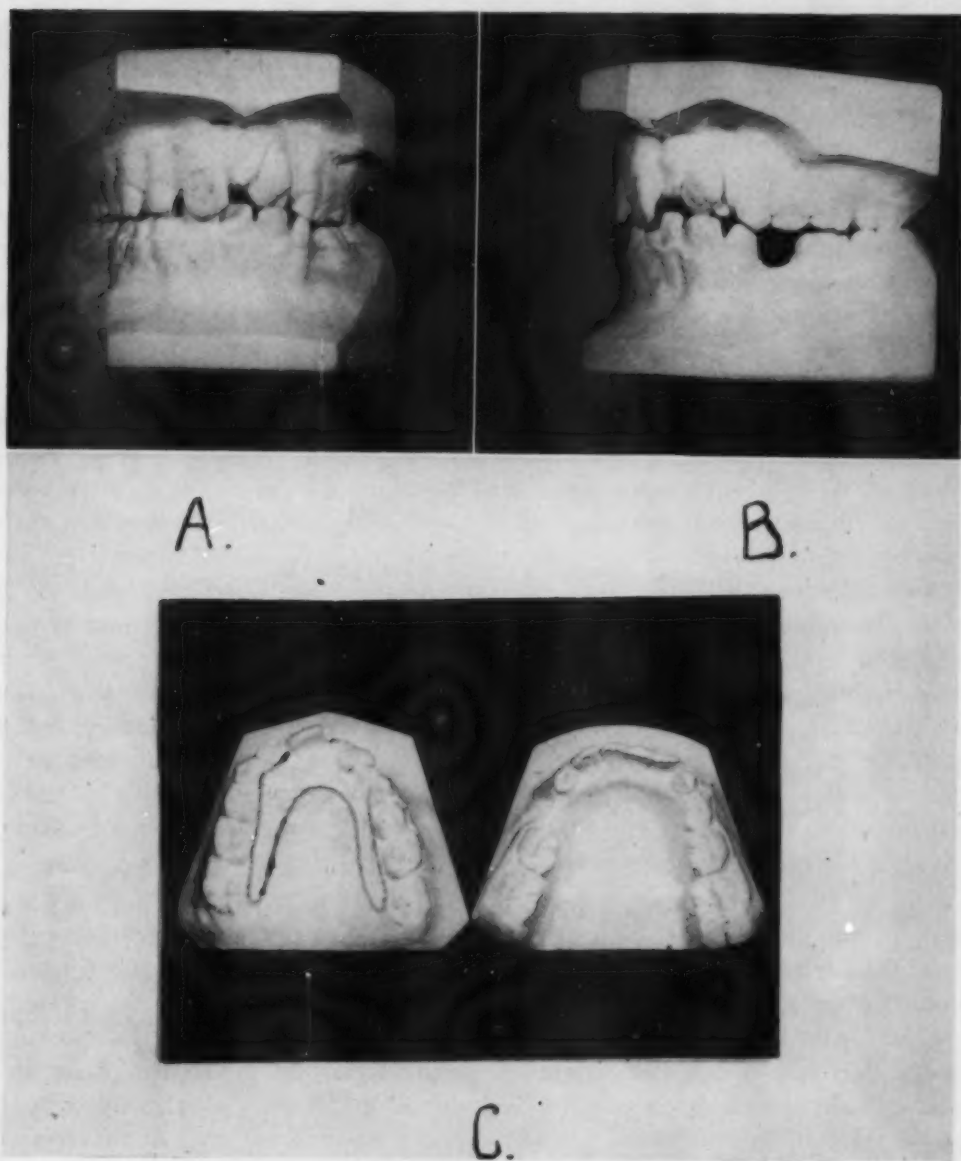


Fig. 1.—A shows the labial view of the models at the age of eight years. Note the cross-bite on the left side, also the fact that the left upper central and lateral incisors were of poor formation and occluding lingually to the lower incisors. Note also that at this age there was considerable overbite between the right upper and lower incisors.

B shows the left buccal view of the general positions of the teeth, including the cross-bite and the frailty of the left upper incisors, poorly supported in the region of the cleft.

C shows the occlusal view, and an outline is drawn to show the design and position of the lingual appliance which was inserted. This appliance was designed to have more resistance on the right side than on the left so that all the lateral development gained was on the defective left side. This active appliance was worn for seven months and was then followed by a plain lingual arch for retention another six months. At that time the remaining deciduous teeth began to exfoliate so that all treatment was suspended until the eruption of the intermediate posterior teeth.

In this superb paper, a true story of facts, Dr. Conway also lists the incidence of ten other congenital defects. These include cerebrospinal involvements, cysts of kidney, facial clefts, heart lesions, spina bifida, multiple or web fingers or toes, clubfeet, and other conditions even more seriously involved.

Realizing that only properly trained oral and plastic surgeons should attempt these operations, it becomes equally apparent that the greatest responsibility rests within their part of the whole. While the heavier load rests in their hands, they cannot do it all in the majority of cases. There comes a time when the orthodontist must take hold in order to supplement some of nature's insufficiencies, and of course it is ultimately in the field of prosthetics that restorations of missing structures, including teeth and soft tissue, are to be accomplished.

Plastic surgery about the face and jaws is intended to provide structures for areas, in congenital conditions, which were never formed: quite different in many respects from those lost by disease or trauma. This as a rule creates a demand on adjacent tissues which may be so moved surgically as to be transposed to positions wherein open cleft areas may be closed. These soft tissue closures, which are indispensable to partition the nasal and oral cavities, have a tendency to restrain the lateral development of the maxillae. Also to the extent that a bony cleft exists through the premaxilla and palatal processes there are absent certain growth centers and stimuli which would have for their purpose the development of the height and depth, as well as width, of the lateral sections of the maxillae, which in their absence invite the collapse of these segments. It is my belief that no orthodontic treatment is ever indicated in any type of malocclusion excepting to supply something which nature is missing entirely, or to supplement those limited efforts on nature's part so as to provide a reasonable equivalent to normal growth.

These facts immediately place orthodontics in cleft palate conditions much more in the category of controlling and guiding growth trends rather than merely the correction of malpositioned teeth. It is my belief that an orthodontist should be called into these cases when the patients are three or four years of age. In order to get the best result it should be his duty to keep the case under observation and to get the patient prepared to adjust appliances as early as can be made practical. As a rule it is necessary for these children to reach an age of tractability so that their fears may be allayed and their reason appealed to. This stage usually comes around the time of the full eruption of the six year molars, beginning with an average age between seven and eight years, including the fact that physiologically these patients are usually behind their chronological average.

It is my belief that these upper arches should have a mild stimulus to increase arch width and to establish correct perpendicular occlusion and functional relationship in the presence of the deciduous posterior teeth. When these intermediate deciduous teeth enter the processes of exfoliation, it becomes necessary to suspend treatment and await a period when the succeeding permanent teeth have fully erupted. As soon as this stage and age are attained it should

be again necessary to supplement these missing stimuli of growth by the means of suitable appliances to continue to increase or maintain upper arch width and occlusion.

In the great majority of cleft palate conditions malocclusal relations through the forces of function establish a pseudo Class III or prognathous condition, in which the mandibular arch is inclined to lengthen and the man-

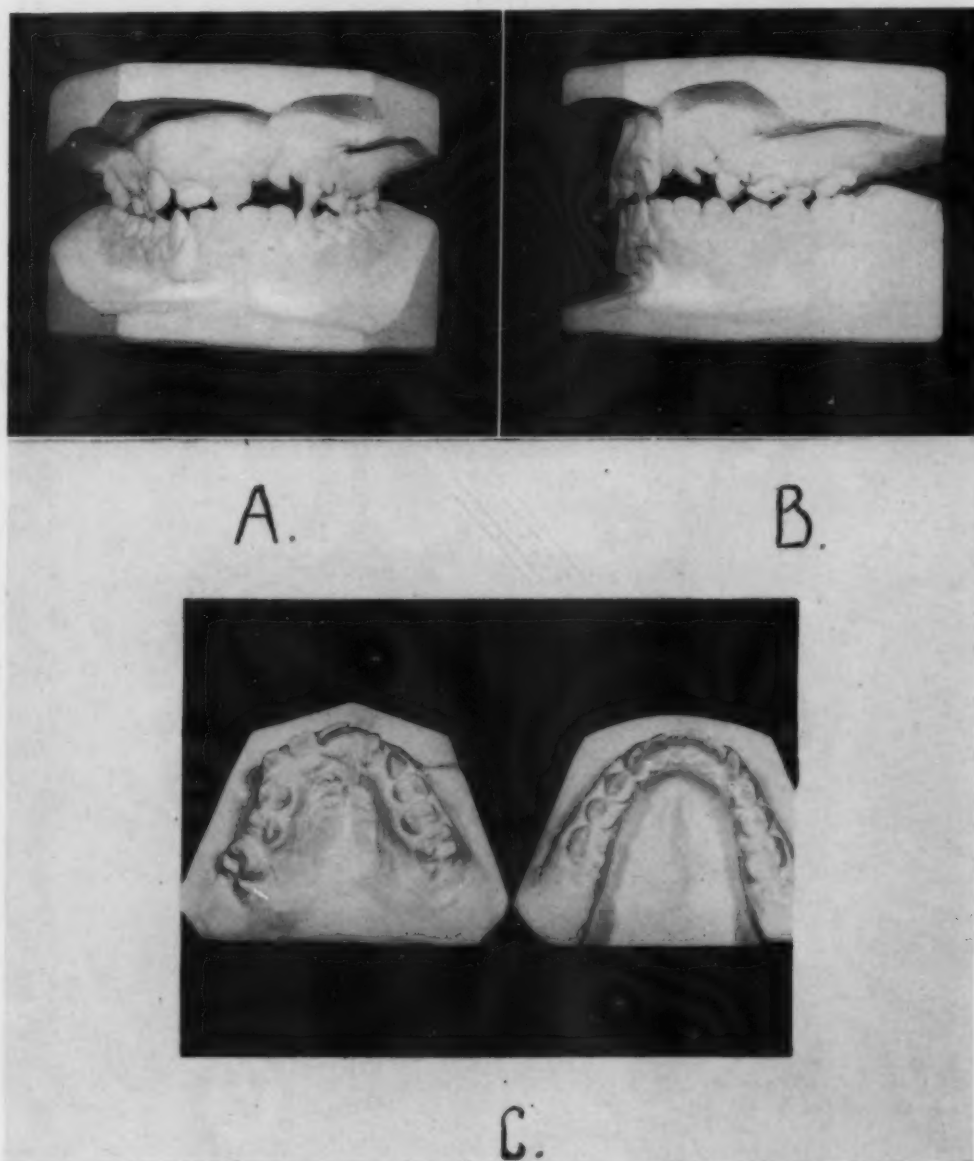


Fig. 2.—A is taken from a model made three years after the original appliances were removed, so there had been no mechanical interference during the loss of the deciduous teeth and their replacement. Again an upper lingual developmental arch was inserted for six months. Note the functional occlusal relationship on the faulty left side, the position of the upper left incisors, and the fact that the right upper incisors are beginning to close in behind the lowers. This model illustrates the characteristic fact that there is a lack of downward and forward growth in the region of the premaxilla. Fig. 2-B and likewise there is a tendency toward the lengthening of the mandibular arch, thus forming a sort of pseudo Class III condition, (Fig. 2-C).

dible to overdevelop. When these patients reach an age, after sixteen, wherein they enter into their terminal growth, there are three factors which seriously involve both the oral surgeon and the orthodontist in anticipation of preparing the field to a point of best advantage for the prosthodontist. These three points are: first the upper lip, including its length, adhesions in the sulcus, and

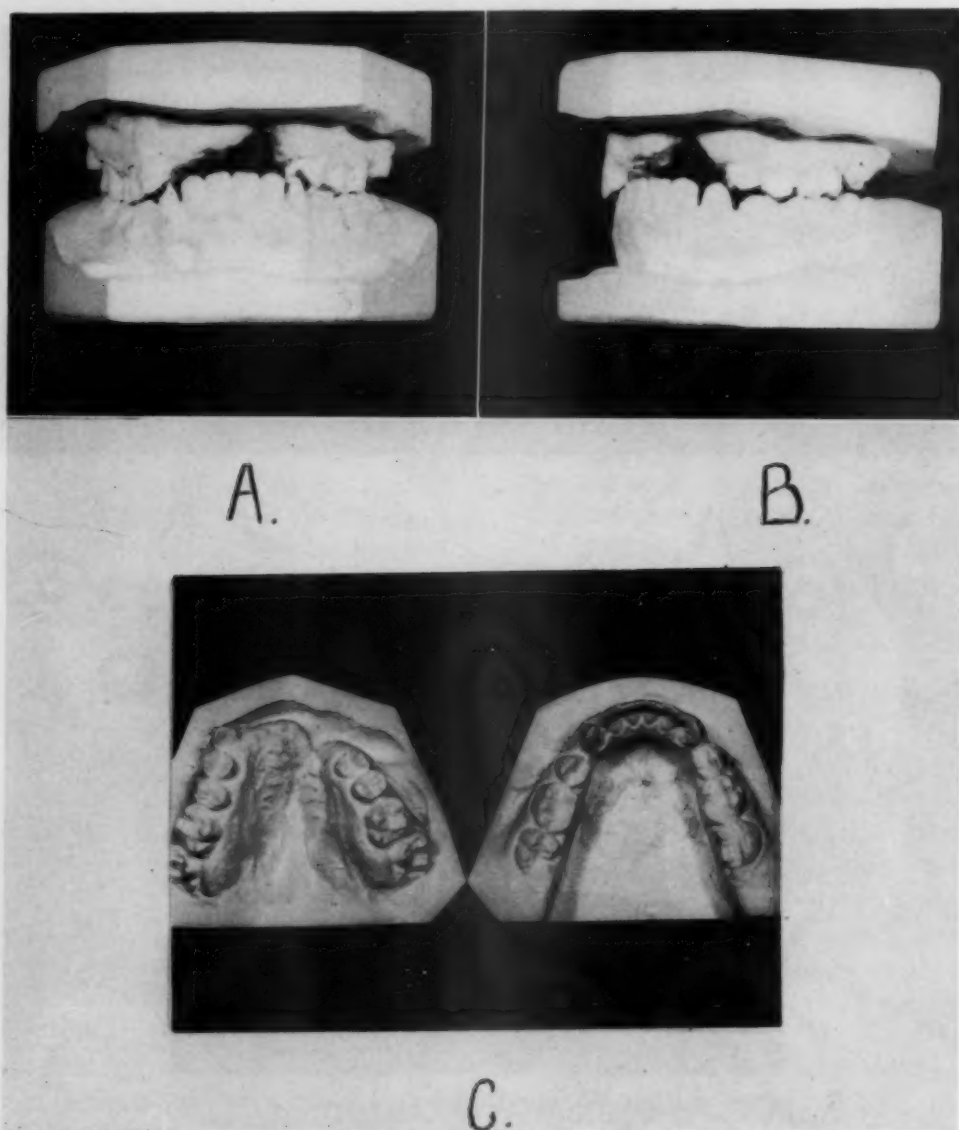


Fig. 3.—A shows the removal of the four upper incisors, the left canine having never formed. This left the posterior segments of the upper arch well occluded with the lower, and conditions favorable for a bilateral restoration.

B shows the left buccal view after the removal of the two lower first bicusps and the six lower anterior teeth moved distally so that an incisive overbite could be made without causing the upper incisors to protrude so far that the lip could not be closed over them.

C shows the arrangement of both upper and lower arches after the final orthodontic step preparatory to inserting the denture. This procedure had made a fair distribution between the length of the upper lip and the six lower anterior teeth so that a denture could be inserted to plumper the lip, thus restoring the correct lip line and an incisive overbite, each as much as possible.

need of support; second, the presence, position, and condition of upper incisors adjacent to the cleft; and third, but not least, mandibular length. It is at this age that the extraction of any questionable teeth, and even all the upper incisors remaining between the canines, should be most seriously considered.



Fig. 4 shows the denture in position.

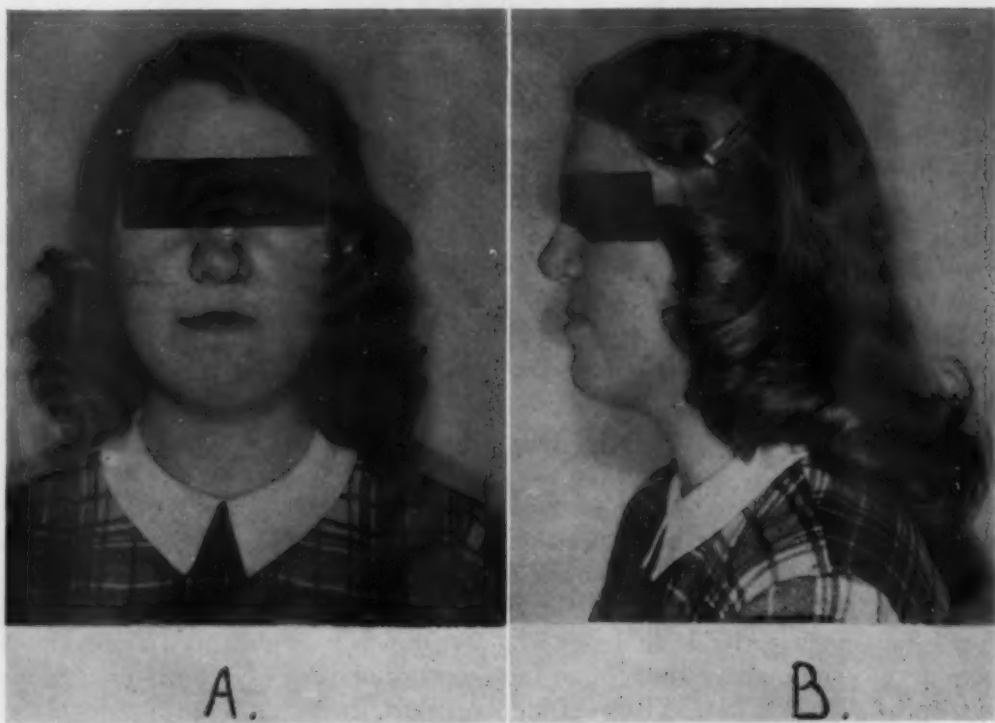


Fig. 5.—A illustrates the full facial appearance in repose and B, the left profile. This case was concluded as planned originally when this patient was eighteen years of age and ready to enter college. It illustrates the indispensable roles of cleft closure at the proper time by the surgeon, the supplementary stimulus to growth at interrupted periods by the orthodontist, and the preparation of the mouth both surgically and orthodontically to receive the denture or obturator by the prosthodontist. Let us hope this triple teamwork can be so developed that in the future it will be generally understood that their proportionate interrelationship is quite invaluable and will be widely practiced.

It is also at this age and stage when, if the mandibular arch is too long, it becomes necessary to remove premolars on both sides so as to retract the six lower anterior teeth to a point of better mechanical advantage. By removing such teeth whereby four upper incisors instead of one or two may be restored, the bilateral rather than unilateral appearance produces a much finer improvement, and the upper lip may be plumpered uniformly throughout its entire length, with more esthetic external facial contours resulting. In other words, it is important to harmonize as far as possible the relationship between the upper and lower lips, the lip line, the relation between the upper alveolar ridge and the lower incisors. By these means only the prosthetic restoration can be placed in position so that lip length and support of the lip line for the upper incisive length, and the position of the lower anterior teeth for upper incisive over-bite may be brought together as harmoniously as possible with a minimum of compromise to all.

It has been both my experience and observation that the treatment of many cleft palate cases has been limited because of the assumption that it is necessary, and the attempt is made, to save certain teeth just on general principles. All cleft palate cases are severe dentofacial disharmonies, and to the degree to which they can successfully be reduced must there be a compromise as widely distributed throughout the area as possible, not concentrated at one point in an effort to protect or conserve others. This is where judicious extractions may coalesce the entire problem onto a practical, solvable, working basis. In this the combined knowledge, judgment, and cooperation between the oral surgeon and the orthodontist are indispensable. Indifference on the parts of either is the first step toward failure to achieve the coveted goal.

You will hear Dr. Parker make one statement which to me is outstanding and the best piece of information about cleft palate surgery I have learned in many years. This is to the effect that he does not prefer to operate on a cleft palate for a patient less than a year of age. This is because of the fact that the further collapse of the already crippled growth stimulus would produce extreme and uncorrectable deformities later. We orthodontists know that at birth the face is about one-ninth of the size of the entire head, whereas at full growth it is between thirty and forty per cent. It is also known that the greatest amount of growth in any one year or during any accelerated period is during this first year. How splendid it is to adopt as a principle the practice of leaving the situation alone until as much as possible of the first year's growth has taken place. This for the first time in my life has tied cleft palate surgery in with growth and development in terms of age. I think it is safe to say that the majority of surgeons who are proficient in cleft palate operations have never even given a thought to the question of time of operation in terms of growth. This is indeed a great step forward, and all the more casts a reflection on those general surgeons who through lack of training are incompetent and know not nor seem to care what they are doing.

Let us now take a look at one of Dr. Parker's patients in order to review some of the important facts in an actual case and see definitely how the close cooperation between the oral surgeon, the orthodontist, and the prosthodontist is vitally interrelated if there is to be any hope of achieving a maximum degree

of improvement. This patient can be considered as about an average case with characteristic but not extreme complications. She was born February 18, 1929, and Dr. Parker performed the lip operation April 16, 1929, at the age of two months. The operation for the closure of the cleft of both the hard and soft palates was performed November 6, 1930, one year and nine months after birth. This accounts for the fact that the structural growth of her face was interfered with very little and was most responsive to the supplemental stimulus of intermittent periods of orthodontic treatment. The child was referred to me on December 10, 1937, at the age of eight years, and at that time Dr. Parker, the parents, and myself laid out a plan of alternate treatment and observation which was followed very carefully.

DISCUSSION

Dr. Douglas B. Parker.—Mr. Chairman and Members of the Northeastern Society of Orthodontists:

It has been a pleasure to listen to Dr. Eby's presentation, and it has also been a great pleasure and privilege to have worked closely with him over a period of many years in cleft palate problems. It is so nice to work with an orthodontist who knows so much of the surgical proceedings and who is familiar through his own contracts and own work with surgery, prosthodontia, and orthodontics. He is a very versatile individual.

Dr. Eby spoke of the incidence of cleft palate and lip as a birth problem. I have been gathering more recent statistics on the subject of the incidence of cleft palate and lip. Just within the past two weeks I have had a report from one of the largest maternity hospitals in the United States, one of the best equipped, and one of the finest institutions of its kind. That is the Margaret Hague Maternity of the Jersey City Medical Center, which is outstanding in its work. I have gathered their complete records of the last 50,000 births, and their incidence of the presentation of clefts of the palate and lip in these last 50,000 births was 0.97 per thousand. The incidence has been very much higher than we used to suppose, probably because in the past the records have not been adequately kept in many places, and statistics can be colored by a lot of different facts.

I have also been in touch with the Office of the Surgeon General of the United States Army, and obtained recent figures on the draft examinations of World War II. The ones from World War I have been published, but the figures from the World War II had not as yet been published in a volume the same as the World War I figures had been. The incidence of clefts of the palate and lip in individuals of draft age (that is of course adults) was 0.9, which corresponds very similarly to the figures from the Margaret Hague Maternity, but that is not the figure relating to births, but to survival, i.e., those who survived to adult age and came up for draft examination. Such a record, of course, taken from all over the United States, not from any one section, is very interesting as a statistical analysis of the incidence of this deformity.

Dr. Eby spoke of the early observation of the orthodontist in cases of clefts of palate and lip. That is a fine point. Something that the surgeon should aim to have is that the orthodontist should see these cases early. Too many of us are apt to think that our field of work is the only field, and we become individualists in our individual fields rather than cooperative individuals.

I might say for one thing that early operation in clefts of the palate has been discarded by many of the best men working in that type of work. "The early interference of clefts—when I say 'early' I mean trying to do it within the early months or within the first year—tends to interfere with growth and development of the maxilla, and many of the worst cases that we see of deformities of the maxilla are cases in which they have been operated too early, usually by the uninitiated, by the general surgeon who is ambitious to do work of this character, but the orthodontist eventually sees those cases very frequently. The deformities that exist in the maxilla due to lack of growth or interference with growth at early stages

sometimes are almost an atrocity. I have under treatment now—and I have shown Dr. Eby—a case that has been operated on by various general surgeons and nose and throat men ten times, in which the superior maxilla is beyond any orthodontic or surgical salvage, and which only prosthodontia can try to build up what nature failed to do through failures of surgical intervention.

Dr. Eby spoke about the extraction of teeth in many of these cleft palate cases. That comes, of course, from contact over the years with many maffy cases in which efforts have been made in trying to move teeth in the anterior part of the mouth, particularly in these cleft palate cases, usually with failure because of the lack of maxillary development, and especially those cases in which teeth were close to the cleft, in which there was insufficient bone between the mesial side of the tooth and the root and the cleft itself. We know there is not sufficient bone to allow bone development and movement of those teeth into any semblance of alignment. Of course, the worst cases we see are the bilateral clefts. The teeth in the premaxillary segment usually are rotated. Most of them are rotated sometimes almost at right angles to their normal relationship as far as the rotation in the vertical axis. Such teeth, of course, are not conducive to movement, and it is almost imperative to extract such teeth, so that while we may try to approach an ideal from the orthodontic standpoint, still we have to resort to the practical in approaching these areas in cleft palate children where the teeth are not amenable to movement and where the maxillae are not amenable to further growth development; consequently, extraction of teeth, as Dr. Eby said, almost becomes imperative.

Fortunately, Dr. Eby has that accurate knowledge of surgical prosthesis that he can devise and carry through many of these appliances which so restore function and at the same time restore contour. The lip in many cleft palate cases is flat because there is no underlying bony support. It is like the carpet on the floor. If your floor is low your carpet is going to be low too, and unless you want the carpet, which represents your soft tissue of the lip and the facial tissue, brought up you have to build up contour either by bone or prosthesis. I am not going to spend very much time in discussion of this because Dr. Eby has very forcibly shown you these cases that are so indicative of what can be done by the extraction of teeth and by other means supplementing orthodontic treatment. (Applause.)

Dr. Eby.—While you are up at the microphone, do you mind telling them about your little triplets?

Dr. Parker.—Dr. Eby has asked me to tell you about the triplets. It has been my good fortune probably to have had presented to me for care and treatment the only case that I can find on record of triplets being born with clefts of the palate and lip. I have some pictures here of them I thought I might show later on. These triplets, as Dr. Eby said, one of them had a bilateral cleft of the lip, the others had unilateral clefts. The mother said there was a single placenta. They are not identical in their deformities because two of them had cleft palates and one of them did not. All three of them had clefts of the lip. The mother I think was only twenty years old at the time.

Dr. Eby.—Is there a history of cleft on either side of the house?

Dr. Parker.—Dr. Eby is prompting me and asking if there was a history. There is a history on both the paternal and maternal sides of the family in this particular case. So frequently we can find familial histories in these cleft palate cases, but here is a case in which there was a history on both sides of the family—a very rare condition indeed. I have questioned the principal plastic surgeons in this country at various meetings of the American Association of Plastic Surgeons, and I have questioned some of the principal plastic surgeons of Europe, asking whether they had ever seen a case of triplets, all three having these deformities, and I have not been able to find any yet that had seen triplets with these deformities. We see twins—not often but we do see them—and there are many histories of twin births with clefts of the palate and lip, but I have never been able to find a history before of triplets.

EXTRACTION AND NONEXTRACTION IN IDENTICAL TWINS

EDWARD A. CHENEY, D.D.S., M.S., LANSING, MICH.

THE utilization of extraction in the treatment of malocclusion has been a topic of discussion for many years. Many practitioners have adhered strictly to the removal of teeth as nearly the only solution to the orthodontic problem. Others have strongly advised that extraction be avoided at all costs. In view of these conflicting opinions it appears that there is a lack of understanding about this procedure and its indications, and that more knowledge needs to be developed if the true place of extraction in the treatment plan is to be understood fully. Thus, data which compare the advantages of removing teeth with the advantages of retaining them, on a factual basis, are important to the profession and warrant careful consideration.

The presentation of such material, however, ought not to proceed without pointing out that extraction is not always of major concern in the orthodontic practice. In many cases there are obvious excesses of tooth structure as compared to the supporting bone, and we resort to the removal of teeth as the only means of bettering the situation. On the other hand, there may be too little tooth structure, as evidenced by varying degrees of spacing, and extraction is given no consideration. In between these two extremes lies a great group of the so-called "borderline deficiency" malocclusions. For these cases any estimation of the place of extraction in the treatment plan is often difficult and requires careful consideration. When confronted by such a problem the practitioner often would like to see the results of extraction on the one hand with nonextraction on the other hand before making a final decision.

In the winter of 1939 an unusual opportunity to conduct an experiment of this type presented itself in the Orthodontic Clinic at the University of Michigan. Twin sisters were brought in for examination. They had been referred from the University Human Heredity Clinic and further had been identified as identical twins. The orthodontic examination revealed that in addition to being unusual as identical twins, these girls were exceptional in that they exhibited identical malocclusions which were well within the category of borderline deficiencies. Continued evaluation of these cases showed that extraction or nonextraction could reasonably be considered in the treatment plan of either, and that extraction as well as nonextraction could terminate in as fairly satisfactory treatment result for one as the other. On the basis of these conclusions, and in view of the unusual opportunity for comparison, it was decided to treat one of the twins with extraction and the other without extraction.

Presented at the meeting of the Great Lakes Society of Orthodontists, Cleveland, Ohio, Oct. 18 and 19, 1948.

DISCUSSION

Jean and Jane, white girls, identical twins, presented for examination on Jan. 20, 1939. At this time they were 12 years, 9 months of age. Both were in good general health. They had experienced similar childhood diseases: measles at 4 years, chicken pox at 5 years, and mumps at 7 years. Jane had contracted pneumonia at 11 years. At the time of examination both children had had their tonsils and adenoids removed. They were further alike in that in both the first tooth had erupted at 6 months, both had walked at 14 months and talked at 20 months. The main difference appeared in their weight. Jean weighed 104 pounds, and Jane 111 pounds.

The facial appearance is shown in Fig. 1, *A* and *B*. These photographs reveal striking similarities in the physical characteristics of the two girls. Aside from the deviation of Jane's nose to the left, there are no basic variations in facial form. The slightly greater fullness in Jane's lower face probably is associated with her additional weight. More noticeable differences were observed in the dentitions. Casts made before treatment are shown in Fig. 2, *A* and *B*. Both patients exhibited an Angle Class I malocclusion. Each had marked crowding of the maxillary and mandibular incisors and canines and mild crowding of the premolars. Both had deep, nearly impinging overbites. A detailed examination of the casts reveals that Jean's maxillary dental arch was 2.5 mm. narrower in the premolar region and about 1 mm. narrower in the cuspid and first molar region than Jane's. In Jean's mouth the maxillary incisor irregularity was less symmetrical. The left central and lateral incisors were more rotated. The premolars were both in occlusal relationship. In contrast to Jean, Jane showed spacing distal to the cuspids in the maxilla. In addition, her upper premolars were in buccal version.

In the mandibular arches both girls showed marked anterior crowding. In Jean, the lower right cuspid was crowded out of the arch to the labial, and the lower right lateral incisor was crowded lingually. In Jane, the mandibular cuspids showed a nearly equal amount of infralabial version, and the first premolars were in lingual version. Jane's lower incisors were in good relation to the basal bone. In both patients the mandibular interdental arch widths from cuspid to first molar were almost identical. With the exception of the first premolars, they varied less than 1 mm. at all points.

The early roentgenographic examinations are shown in Fig. 3, *A* and *B*. With the exception of one carious area on the distal of Jean's mandibular left first molar, the dental health was excellent. In Jean's mouth (Fig. 3, *A*), the maxillary third molars were developing lingual to the second molars. In Jane (Fig. 3, *B*), only the right maxillary third molar appeared lingual to the second molar. Jane's left second molar was the only tooth of this type in either mouth not interfered with by lingually posed wisdom teeth. It was interesting to observe that this tooth was the first of the second molars to erupt and the only one to come into good occlusion. All other second molars were forced to erupt into buccal version by the lingually posed third molars. In both patients at this time the third molars appeared in good position.

The etiology in these malocclusions is clearly on a basis of heredity. In addition to being almost identical, one to the other, the twins were similar in development to their mother and father. Both parents had Class I malocclusions with crowding of anterior teeth. The father had a deep overbite; the mother a medium to deep one. The father had a symmetrical type of malocclusion whereas the mother's was asymmetrical. Both parents had large, well-developed faces and jaws. In most features, then, the twins were basically

A.



B.

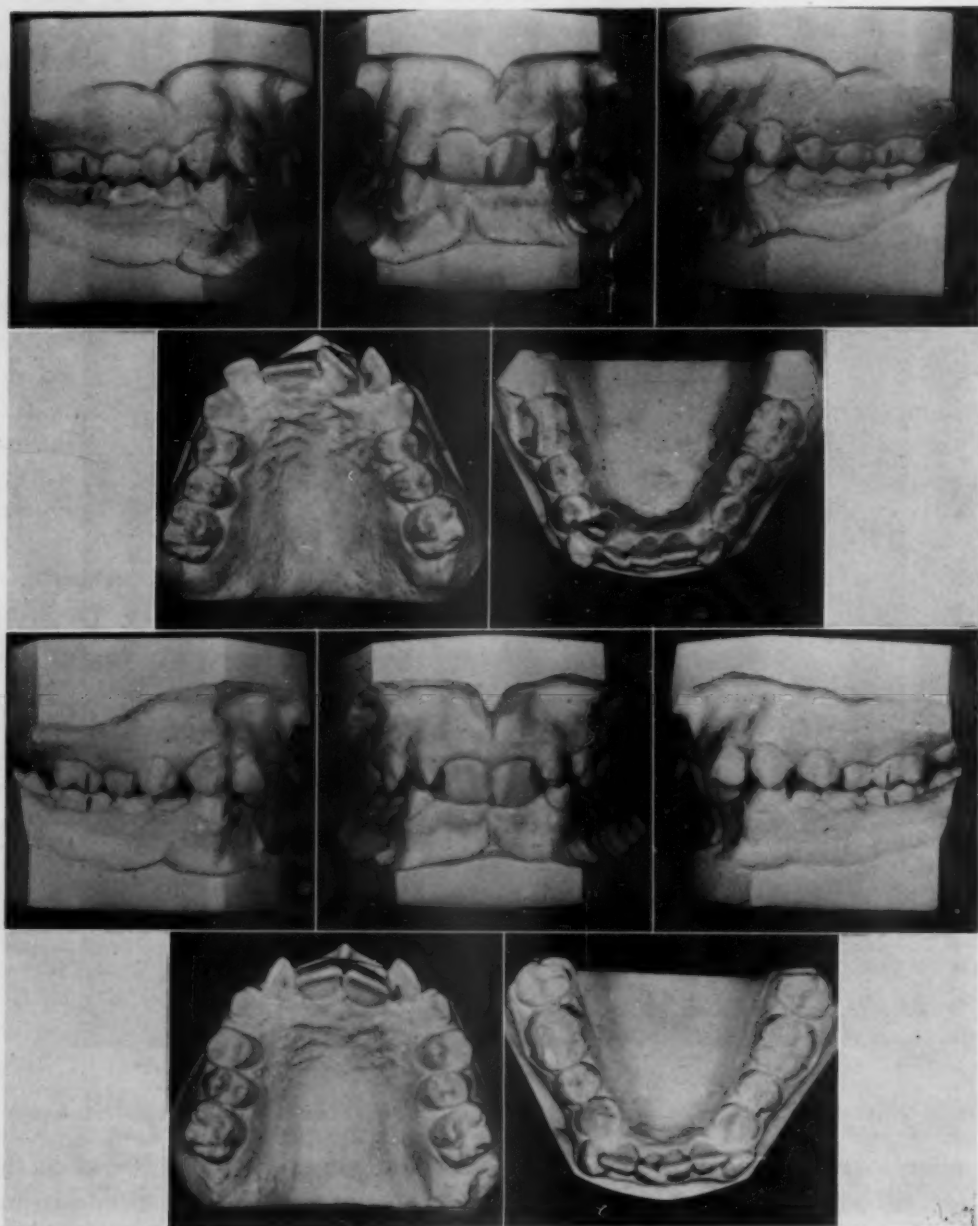
Fig. 1.—Frontal and profile photographs of Jean (A) and Jane (B) taken before treatment.

similar to their parents. In tooth size they were almost identical one to the other. The past history revealed no premature loss of deciduous molars or other local causes as contributing to the development of malocclusion.

In the development of the treatment plans the decision to extract four premolars from Jean, in preference to Jane, was made on the basis of several

facts reviewed earlier in the diagnosis. These are best reviewed in Fig. 2, *A* and *B*. In Jean the maxillary apical base, and hence support for the teeth, appeared less favorable than in Jane's case. There was also the consideration of Jean's asymmetrical malocclusion as compared to her sister's symmetrical one. As the result of the latter's symmetrical development the distally tipped

A.

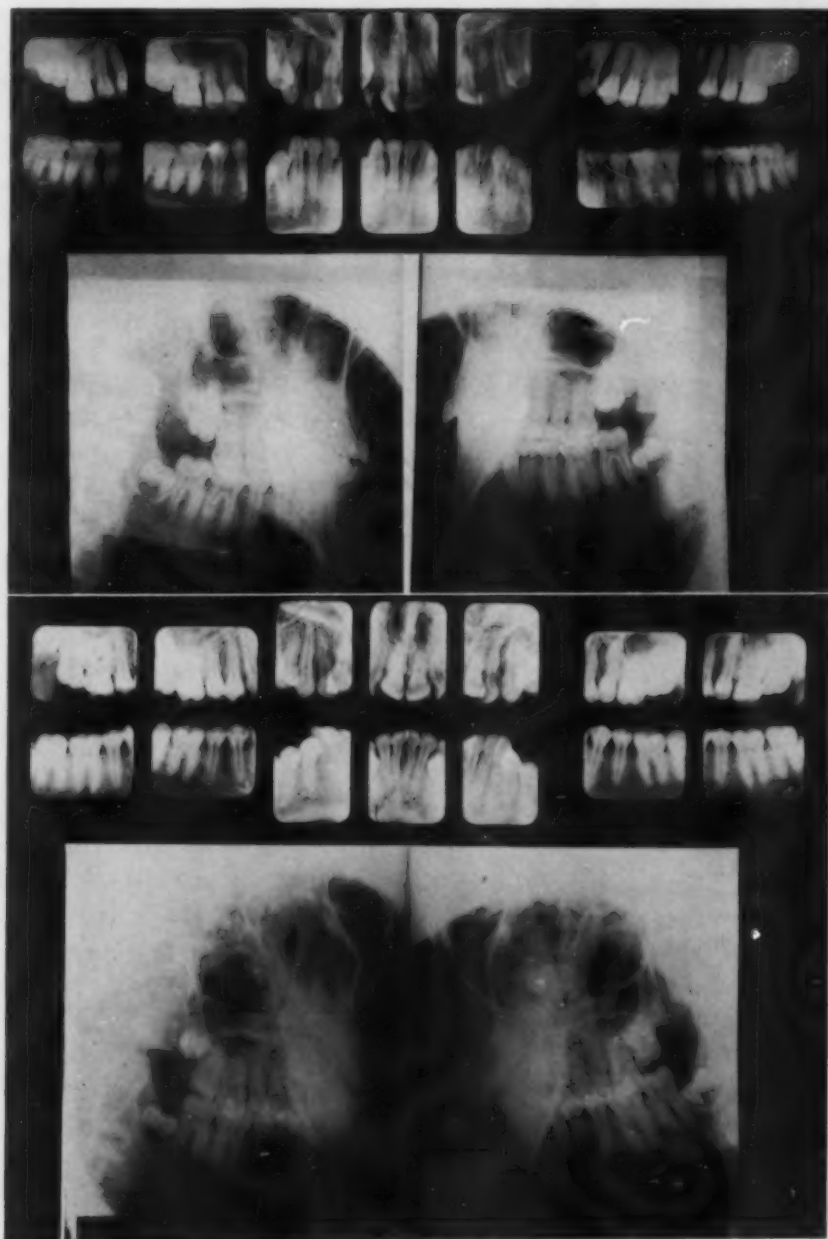


B.

Fig. 2.—Casts of Jean (*A*) and Jane (*B*) made before treatment.

mandibular canines appeared to be more difficult to handle following extraction than did those of Jean's. On the other hand, it was judged that the extreme depth of overbite could be difficult to deal with during treatment following extraction in either case. In the final analysis, however, it was decided to extract the four first premolars from Jean's mouth because she had a slightly more

A.



B.

Fig. 3.—Intraoral and lateral jaw x-rays of Jean (A) and Jane (B) taken before treatment.

deficient maxilla and there was a better opportunity to handle the mandibular canines than in Jane.

In November of 1940 the treatments were started. The appliances were placed and Jean's premolars were extracted. In general, various combinations of the Johnson twin arch and labiolingual appliances were used. All first molars were banded and served as anchor or abutment teeth. All incisors and canines were fitted with Johnson-type bands and attachments.

In Jean (extraction) treatment was initiated by means of the W-shaped expansion arches and the Johnson appliances. Later, as the incisors moved into better alignment, plain round lingual arch wires were placed. Several methods were used to close the spaces created by the extraction of four premolars. The aligning effect of the twin arch wires was first employed. The advantage of timing the extractions was also used. First the maxillary premolars were extracted and the maxillary canines were moved distally to advantage. Two months later the mandibular premolars were removed and the lower canines were started on their way. In both arches, combinations of inter- and intramaxillary elastics and various types of attachments off the canines were used to prevent the tipping of teeth. Toward the end of treatment elastics-through-the-bite from hooks on the buccal of the maxillary molars to hooks on the lingual of the mandibular molars were used to correct the buccally posed maxillary second molars. These teeth had been forced into buccal version as the third molars lingual to them began to develop (Fig. 3, A).

In Jane (nonextraction) the entire treatment was completed by means of the W-shaped expansion arches and the Johnson appliances. Toward the end of treatment elastics-through-the-bite were used to correct the buccally posed right maxillary second molar. As in Jean, it had been forced into this position as the third molar lingual to it began to develop. The left maxillary second molar was not interfered with by the third molar on this side of the arch, and erupted into good occlusion (Fig. 3, B).

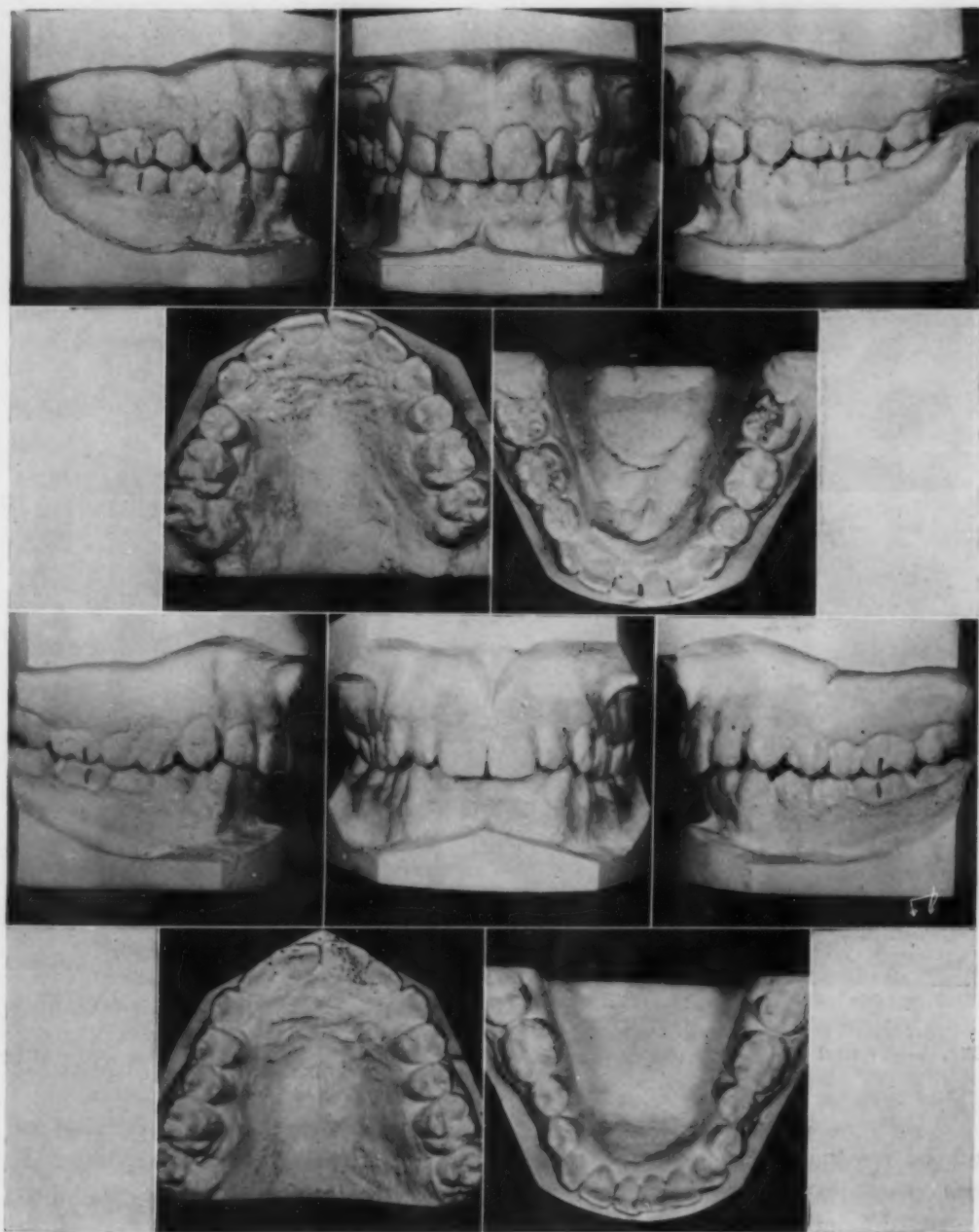
The appliances were removed from Jean's mouth in May of 1942, after eighteen months of treatment. A typical Hawley retaining device was then placed. It had a steep incline designed to reduce the deep overbite and was worn at all times. The same procedures were employed in Jane's case in September of 1942, after twenty-two months of treatment.

By late spring of 1944 Jean had been wearing her Hawley incline nights only for one year. Jane had been following the same procedure. Complete records were taken at this time. The casts are shown in Fig. 4, A and B. They reveal functionally adequate dentitions with good esthetics in both cases. The overbite is approximately the same in both girls. In Jean's dentition there was spacing distal to the maxillary right lateral incisor and canine, and between the mandibular central incisors. Jane showed slight irregularity in the maxillary premolar regions. Also the mandibular incisor and left canine were slightly irregular.

Several months after this examination, in the fall of 1944, the circumstances of the war forced many people to change their living habits and environments.

In this respect these girls were of no exception. As a result of this interference it was nearly a year before Jean and Jane were again seen in the clinic. Although not advised to do so, both had long since ceased to use their retainers. An effort to replace them revealed that neither retainer would fit. In addition,

A.



B.

Fig. 4.—Casts of Jean (A) and Jane (B) made at end of retention stage.

the twins were much against continued wearing of these devices. Casts made at this time revealed no decided occlusal changes and are not shown here. In view of this circumstance and the reluctance of the girls to wear the appliances, it was decided to let the comparison go its course.

A.



B.

Fig. 5.—Frontal and profile photographs of Jean (A) and Jane (B) taken three years after end of retention.

Records were again taken in May of 1948. This was six years after the end of the treatment for Jean and nearly six years after treatment for Jane. In both cases over three years had passed since any retentive devices had been worn. Facial, intraoral photographs and casts were again collected, and frontal and lateral cephalometric roentgenograms were taken. Intraoral radiograms were not obtainable at this time.

The facial photographs are shown in Fig. 5, *A* and *B*. As in 1940, there is little if any difference in facial form aside from the general relationship of size. Jean is slightly smaller. The front view of Jane reveals a fullness through the lip area which Jean lacks. Some orthodontists may attribute this lack of facial fullness to the absence of four premolars.

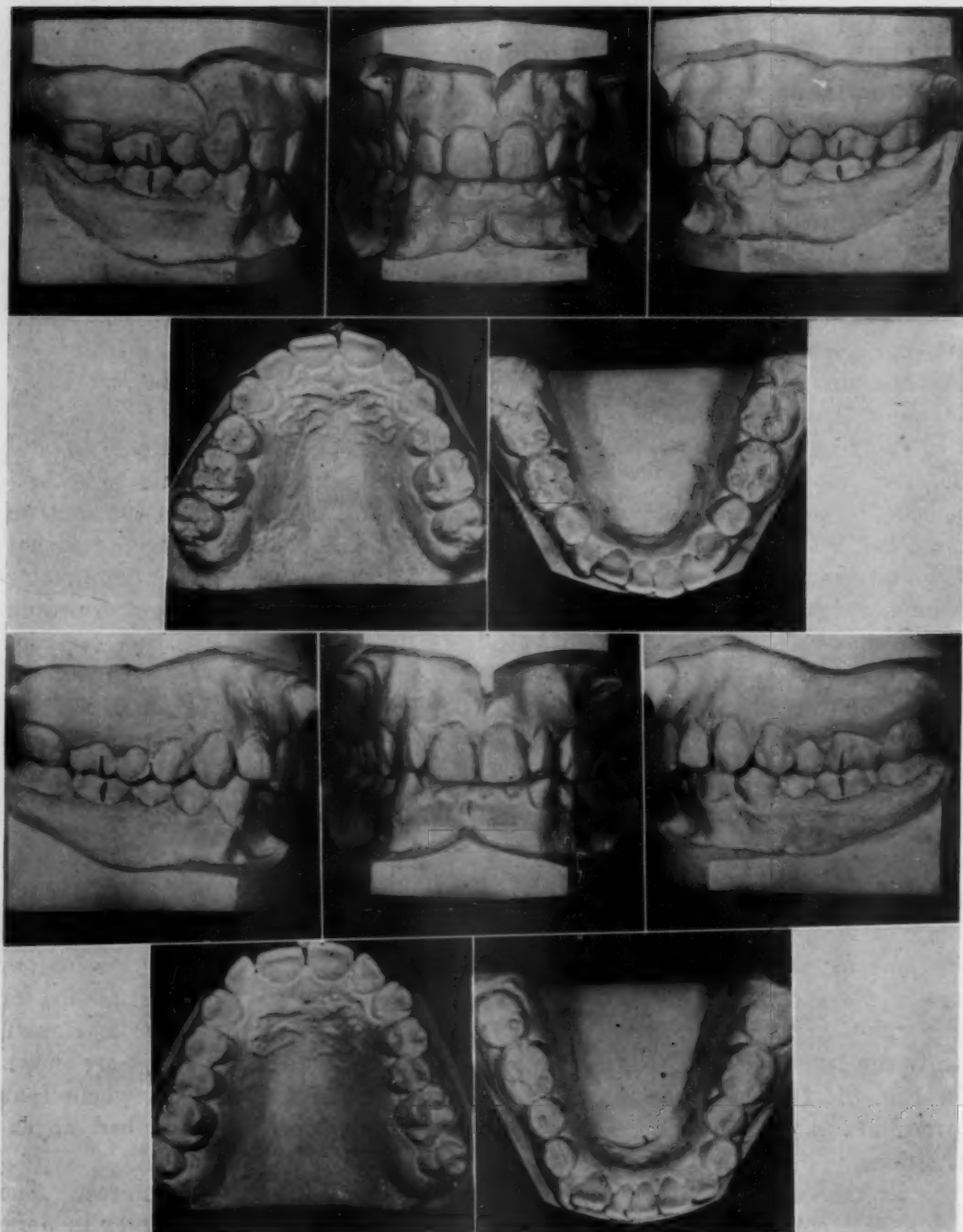
Casts taken at this time reveal in more detail the changes which have occurred since the end of the retentive period. These casts are shown in Fig. 6, *A* and *B*. In Jean the spacing, previously found distal to the maxillary right canine and between the mandibular central incisors, has disappeared. There has been little other change in the shape of the upper arch and only a little crowding in the lower arch. Here the mandibular right lateral incisor and cuspid show a slight crowding. There has been little change in Jane's maxillary arch other than in the lateral incisors. However, some change is also observable in Jean's lateral incisors. In Jane's mandibular arch there is very obvious crowding in the lower right cuspid and lateral incisor region, and to a lesser degree in the left premolar area.

The frontal and lateral head plate radiographs are shown in Fig. 7, *A* and *B*. The exact likeness in shape and form of the skull and head bones is noticed at once. There is a marked symmetry of structures on one side of the skull to the other. The x-rays of Jean also reveal, for the first time, that she had not followed the advice to have her mandibular third molars extracted. One molar is impacted and lies horizontally on the side of the arch where a slight crowding of the mandibular cuspid occurred. It is probable that this situation has contributed to the canine irregularity. On the opposite side of the arch the third molar is present, but not impacted. In this quadrant dental changes are not observed.

Further examination reveals that both dentitions appear to be generally well related to the supporting structure. The maxillary and mandibular incisors appear to be slightly more upright in Jean's case. Here also, the radiolucent areas distal to the canines suggest that the bone has not yet returned to full calcification following the extractions. There may be some tendency for the roots of the maxillary incisors in Jean's dentition to be more labial in position in the maxilla. However, to test this and other comparisons it seems best to use a more exacting technique. The Broadbent-Bolton research method of superimposing cephalometric roentgenographs one upon the other was used. Only the lateral head plates were traced. The superimposed tracings are shown in Fig. 8. In these tracings the solid line represents Jean from whom four premolars were removed. The broken line represents Jane who had no extractions.

In the comparison of these tracings several findings are of interest. The distance from the center of sella turcica to menton is slightly greater in Jane than in Jean. The over-all length of the mandibular body is slightly greater in Jane than in Jean. To a lesser degree the same comparison holds true for the over-all length of the maxilla. In Jean the first molars have moved mesially. Also the incisor crowns and part of the roots are lingual to those of Jane's. There is little, if any, difference in the labial aspect of the maxillary roots as

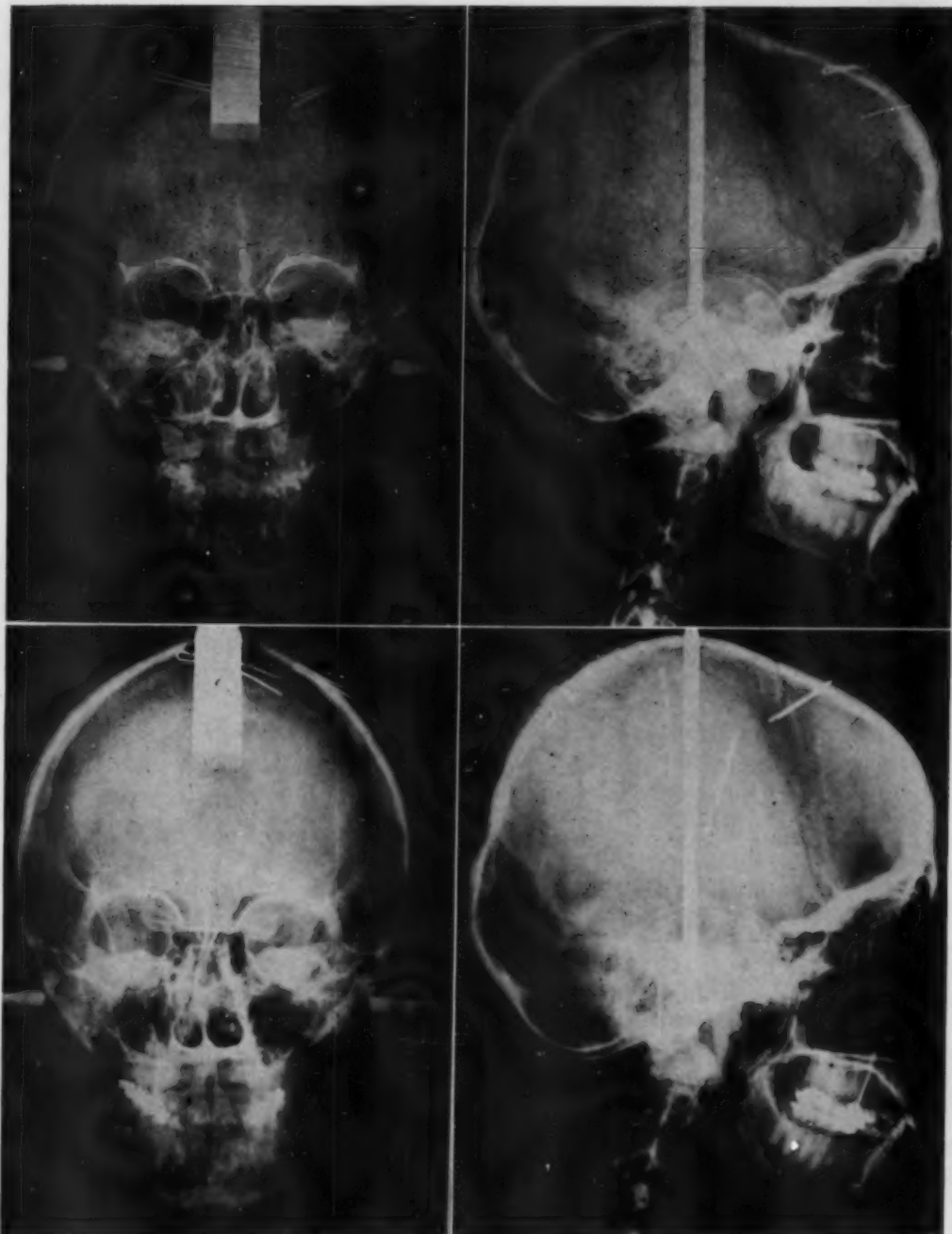
A.



B.

Fig. 6.—Casts of Jean (A) and Jane (B) made three years after end of retention.

A.



B.

Fig. 7.—Frontal and lateral cephalometric x-rays of Jean (A) and Jane (B) taken three years after end of retention.

was suggested previously. Rather, the apices of the maxillary and mandibular incisor roots occupy approximately the same positions. In Jean, during treatment following extraction, the incisor crowns appear to have tipped to the lingual without the apical ends of the roots having changed.

In contrast to the differences in tooth and jaw structure is the marked similarity of the soft tissue profile. Here, in spite of the variations in supporting structures, the upper and lower lip tracing superimpose nearly one upon the other. Only opposite the lower incisors is there a discrepancy in form.

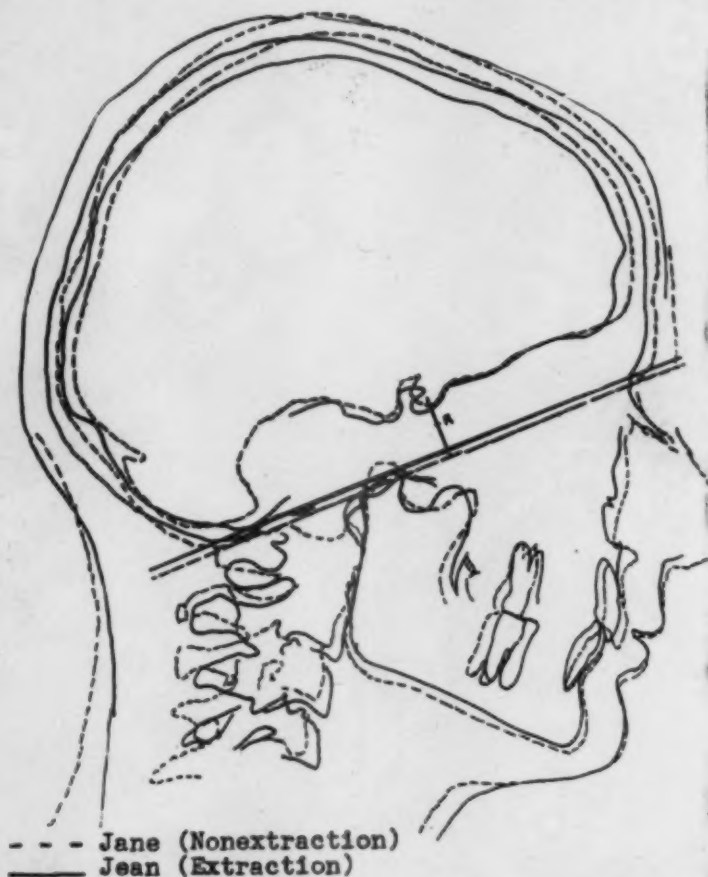


Fig. 8.—Superimposed tracings of Jean and Jane taken from lateral cephalometric x-rays.

SUMMARY

A review of the treatment results of the two cases discussed here affords many opportunities for comparison. One of these, at least, warrants further consideration.

In approaching the problems of the deficiency malocclusion there is a great need to look at the details of the dentition in its entirety before removing dental units. Often there are implications of a hereditary nature. These may provide an optimistic outlook for treatment on the basis of retention of all teeth. Occasionally there are circumstances within the dentition itself which provide ade-

quate reason for retaining as well as reducing the amount of tooth structure.

There is little doubt that the removal of teeth assists considerably in the correction of malocclusion for esthetic purposes. On the other hand, the creation of deep traumatic overbites, the tipping of crowns together to form pockets for parodontal lesions, and the destruction of bone and tissue in general, as the result of injudicious removal of dental units, are poor testimonies for orthodontic service. Before deciding to extract, then, it is necessary to evaluate the hoped-for results in terms of the ultimate function and health of the tissues involved. The information obtained from this report tends to support these conclusions.

First, although incisor alignment was enhanced by the extraction of four premolars, the advantage is not so great as to warrant a wholesale movement toward this procedure. The examination of the results in both girls three years after the end of retention bears this out. In both cases, there is a recurrence of dental irregularity. Admittedly it is greater in the twin who was treated without extraction. But for both the relapse is there.

In further consideration of the esthetics it is of interest to point out the opinion of both girls regarding their appearance at the end of three years without retention. Both are exceedingly well pleased with their respective results. Jean is glad that she had four premolars removed and would have had it no other way. Jane, in the same mood, is equally well pleased to have her full complement of teeth and would have it no other way. In these circumstances, at least, the orthodontic standard of ideal alignment is far beyond the requirements of the patient. It is not unreasonable to expect that this is so for many of the individuals whom we treat. On the other hand, let us assume that these patients had required the ultimate in orthodontic endeavor with respect to incisor alignment. In either case the use of a retaining device would have been a necessary adjunct to idealism. As it was, the use of a retainer, nights only, by the twin without extractions would have maintained her dentition equal to that of the sister.

These comparisons, then, support one consideration important above all others. With the "so-called" borderline deficiencies we have an opportunity in treatment, should the need arise, to go one way as well as the other. This realization permits us to rise beyond the realm of appearance and into the true responsibility of dentistry, namely, the health and function of the teeth and their supporting structures. When it is reasonable to meet the esthetic demand or to simplify treatment procedures by means of the extraction of teeth, let us do so without hesitation or fear of being termed radical in this procedure. On the other hand, when the removal of dental units seems contraindicated and the need for retention is apparent, let us resort to retainers as an advisable part of the treatment plan. This approach to extraction makes common sense. It is a rational one and in keeping with the needs of the patient and the responsibilities of the practitioner.

THE PRIMARY DENTITION AND DENTOFACIAL ORTHOPEDICS

DALLAS R. McCAULEY, B.S., D.D.S., BEVERLY HILLS, CALIF.

MODERN orthodontics as classified by Weinberger²⁷ is the period in the history of the specialty from 1900 to the present time. Yet, it is interesting to note that in general the basic methods employed by the orthodontist as early as the beginning of the nineteenth century are still utilized today. This refers to the "bandelette," now called the expansion arch, as described by Pierre Fauchard in 1728. During the eighteenth and nineteenth centuries the art of straightening irregular teeth was considered a matter of applying mechanical pressures. Around 1900 this art had progressed to the point where it took its place as a dental science. Orthodontics became one of the first dental specialties, and entered a period of rapid accumulation of knowledge. A small group of pioneers began devoting their entire time to this work, and it soon became evident to them that empirical "straightening of the teeth," presented some rather unexpected complications. They realized that the treatment of crooked teeth became involved in the complex question of growth. The need for greater knowledge of the causes behind the anomalies they treated became apparent. Progress has been rapid from that time. Appliance techniques were perfected; much was learned of the osseous reaction to appliance therapy; local etiological factors were determined and classified; and scientific research procedures were applied to the rapidly expanding problems of treatment.

As a better understanding of the true nature of the orthodontic problem was gained, the importance of early preventive treatment was recognized, and by the early thirties was quite generally considered the most favorable method of treating micrognathia. Knowledge then available of the etiological factors of what was termed "malocclusion" indicated that its occurrence could be prevented in a surprisingly large percentage of the cases by a comparatively simple course of early treatment. This opinion was gradually supplemented, as more experience was gained, with the belief that skillful appliance therapy could also stimulate a substantial growth of the osseous structures supporting the dentures. Such was the general tenet of the profession until recent years, which years have witnessed a very strong shift away from the belief that treatment of the primary dentition is indicated. Since the controversy has its answer entwined in the very roots of orthodontic science, it merits every bit and more of the critical investigation it is now receiving.

A survey of the orthodontic literature reveals that until recently the majority of written opinion was in favor of early treatment of dentofacial anomalies. The orthodontic textbooks without exception teach the principle of early treatment.

This thesis was prepared in partial requirement for certification by the American Board of Orthodontics.

Edward H. Angle⁵ advocated treating cases as soon as the variation from the "normal" was evident. Dewey-Anderson² upholds the practice of treating a dentofacial irregularity as soon as it is detected to be of permanent nature; or to be beyond the likelihood of self-correction. McCoy¹ presents a similar principle, and stresses the benefits of treatment resulting from the achievement of functional and anatomical balance established during the periods of most active growth processes. Strang³ is somewhat more specific as to which types of cases should receive early treatment, emphasizing that considerable care should be taken to interfere only when natural growth processes have been given every reasonable opportunity to correct the anomaly. Salzmann⁴ supports the premise that the primary dentition should be treated for the purpose of restoring function and arch relationship. These men teach that we are dealing with a growing organism and that its progress toward maturity is affected by heredity, health, disease, and environment which includes nutrition, function, and orthodontic appliance therapy.

Turning to the orthodontic publications, one finds many articles devoted to the question of when to begin treatment. Here, the present trend to later treatment is noted by the fact that the articles of ten, fifteen, and twenty years ago were almost unanimous in their support of the early treatment principle, whereas many of the more recent ones, with a few highly significant exceptions such as those by L. B. Higley,²⁰ stress the limitations of mechanotherapy and imply the unchangeability of hereditary patterns. Men such as Charles R. Baker,^{6, 7} Joseph D. Eby,⁸ Samuel J. Lewis,⁹ Paul G. Spencer,¹⁰ Raymond C. Willett,¹¹ B. E. Lischer,¹² S. C. Hopkins,¹³ Leland R. Johnson,¹⁴ Ernest R. Bach,¹⁶ and L. B. Higley,²⁰ support the general premise that early establishment of favorable function of the teeth and their associated structures will contribute measurably to the development of the permanent dentition and to the adult facial features. On the other hand, we have the articles of a more recent date by Allan G. Brodie,¹⁵ Milo Hellman,¹⁷ Charles H. Tweed,¹⁸ and Hays N. Nance¹⁹ taking the stand that early treatment has no appreciable lasting effect on the final growth of the face and denture. These authors reflect opinions and tendencies of a growing number of the orthodontists of the nation. An effort to analyze these two conflicting theories leads to the conclusion that we are observing one of the more important growing pains of our professional progress. On the one hand we have a group which believe that environment, both dental and physical, has a very definite effect on the growing denture; that the orthodontist must devote himself to the study of growth, and of ways and means to stimulate dentofacial growth, and that he must not continue to limit himself to the mechanical approach to his problem. On the other hand, we see a group which believe that the failure of mechanical appliances to stimulate bone growth is final and conclusive; that growth is predetermined genetically and is little affected by appliance therapy; and that we as a profession are limited to the use of the mechanical appliance and, consequently, we must find means to make it suffice, namely by the use of surgery. There you have the essence of the controversy. Its expression in daily practice is the question, "Shall I treat the primary dentition, or shall I postpone treatment until the permanent dentition

erupts and the deficiencies of growth are manifest, then extract tooth substance to enable mechanotherapy to achieve my objective of facial and dental harmony?"

Why has there been such a pronounced swing to this new "limitation of treatment" thought; this orthodontic defeatism? It would appear to be a result of a number of factors. First, it results from a failure on the part of the orthodontist to conform and maintain his patient's teeth and facial configuration to his concept of a "normal"; second, from the conclusion that appliance therapy is incapable of stimulating real bone growth in adequate degree; third, from a faulty interpretation of the recent findings of cephalometric growth studies; and fourth, because the orthodontist has limited himself to the mechanical approach, neglecting the physiologic factors.

Failures to treat dental anomalies successfully have been attributed in the past to many causes, among which are: appliance techniques, the failure to establish a balanced function, a faulty diagnosis, and improper retention. Now we find the popular culprit to be the improper relation of denture to cranium and face, a somewhat more engrossing matter. The term "failure" is used here principally to designate those cases in which the dentures could not be retained in exactly the relation achieved by the treatment. The extent of the failure depends on the objective of the individual orthodontist. Some regard a crowded and rotated mandibular incisor as sufficient to condemn a case a failure; others do not demand such a high degree of adherence to the "normal," and are happy to maintain a good dental function.

What is this thing we speak of as the "normal"? Strange to say, there is little agreement on exactly what constitutes a common basis for a norm. Dr. Angle, one of our foremost teachers, arbitrarily chose a skull exhibiting a denture which appealed to his sense of the artistic and established it as his normal occlusion. We have the law of the key ridge, the relation of maxillary to mandibular first permanent molars, the "individual norm" as related to body type, the craniometric classification of Simon, and a number of methods to predetermine the "normal" arch form. Dr. Charles H. Tweed has recently evolved another idea of the "normal" built around the axial inclination of the mandibular incisors. Generally, orthodontists have considered the "normal" to be that relationship of maxillary to mandibular and right to left teeth which resulted in their personal idea of facial symmetry, arch shape, and cranial relationship. Although a consideration of racial type is hazily spoken of, the average procedure appears to be for each operator to adapt the teeth and facial structures of all patients to his own idea of normalcy. The old practice of using predetermined arch forms was a very prominent example of this line of thought. Dr. Tweed will allow only a variation of five degrees from the vertical to the "basal bone" in his concept of the normal. He has determined the type of face he likes, and is attempting to produce his "normal" in all of his patients. He finds it necessary to remove teeth in a majority of cases to accomplish this. This is not a philosophy. It is a compromise to mechanics, and its basic premise appears to have little scientific support. Allan G. Brodie¹⁵ concludes from his cephalometric studies that the axial inclination of the mandibular incisors is an

individual characteristic, and shows a great range of variability. Referring to the inclination of the long axis, he states, "To accept its mean value as a norm is wholly unjustifiable according to any scientific standards." Another study conducted by Thomas D. Speidel and Morris M. Stoner²¹ also disagrees with Dr. Tweed's thesis. These investigators chose forty-two adult subjects with superior to almost ideal occlusion and studied the axial inclination of the mandibular incisors. They reported a very wide variation in the mandibular configuration, and as much as thirty degrees' variation in inclinations of the incisors despite excellent occlusal relationships. The anthropologist tells us there is no formula for a "normal"; variations in human development are the rule. Efforts to establish a rigid rule for growth to follow can only end in failure, and it is agreed by all that treatment which is predicated on a faulty diagnosis cannot be expected to produce the desired result. Consequently, one might with logic state that here lies one prominent reason for failure to maintain our treatment results. The objective was impossible of achievement; our diagnosis was incorrect. More real knowledge of growth of the face, denture, and cranial structures is required. It is the basic essential of a correct diagnosis of the dentofacial anomaly.

That appliance therapy is incapable of causing bone to grow contrary to its physiologic pattern has been understood by the orthodontist for many years. There was reason to believe, however, that if appliance therapy were properly and skillfully applied in accordance with the physiologic pattern, true growth would be stimulated. This too is now discounted by many. Their experience in difficulties of retention of their cases has been interpreted in that light. Their failure to obtain growth in the permanent dentition as a result of treating the primary dentition was considered ample evidence of their contention. Could it not be that an imperfect knowledge of how to utilize the principles and laws of dentofacial growth contributed heavily to this failure? Studies of the growth of the head have been greatly accelerated by the development of the roentgenographic cephalometer by Dr. B. Holly Broadbent.²² Allan G. Brodie¹⁵ concludes from such a study of facial growth the following statement: "To summarize briefly the material thus far covered it is possible to state that a longitudinal study of growing children indicates that the morphogenetic pattern of the individual is established at an early age, and that once attained it does not change." This implies that facial growth is dominated by the hereditary pattern and that environment will have little effect. Yet, W. M. Krogman,²³ in summing up his interpretation of present-day knowledge of facial growth, says that if we accept the principle that facial growth is subject to the same general influences and interferences as general bodily growth, then whatever inhibits the latter is reflected in the former. Salzmann, on page eighty-three of his *Principles of Orthodontics*, says: "The inherent growth pattern of the face is influenced in its developmental course by function; growth of the sinuses; the development, form and position of the teeth; the facial musculature; the tongue and the countless general, physical, and environmental factors." If we agree to the premise that function enhances growth, then we must favor early treatment because by the time the first permanent molars have erupted, four-fifths of the total width of the face has been achieved.

W. M. Krogman of the University of Chicago²³ tells us that the incremental growth of the face is most vigorous in height between 10 and 20, in width it increases until the age of 18, and in length its periods of activity are adjusted to the eruption periods, being very prominent between the ages of 16 and 19. Krogman also states that malocclusion is a fundamental imbalance between forward or length growth of upper or midface and lower or mandibular face, and that forward growth is directly dependent on bodily developments. The effort to give a child a 20-year-old denture, positionally speaking, in a 12-year-old face may not be basically sound. It is true that this practice is forced on us by practical considerations, but it is a flaw in our treatment. We know the denture tends to develop forward from the base of the cranium. What we do not know is how much forward shift we bring about by our orthodontic appliances. The orthodontist who has repeatedly observed cases where lateral expansion was produced in the primary dentition but not transmitted to the permanent dentition, and also the cases which, finished at the age of 12 or 13, demonstrated a marked degree of relapse within a few months following removal of retaining appliances, may understandably attribute this failure as the inability of appliances to stimulate bone growth. But there are other possible interpretations. The physiologic growth pattern may have been violated by too severe appliance stimulus, by stimulus applied in direction contrary to growth pattern, by applying stimulus at time contrary to growth pattern. The child's health may have been interrupted or inadequate to sustain bone growth during the period. Other environmental factors may have been unfavorable. These possibilities should be studied and considered thoroughly before concluding that bone cannot be favorably influenced in its growth.

The tremendous interest and study generated by the very fine work of Dr. B. Holly Broadbent have been a boon to orthodontic progress. The many cephalometric studies which have been conducted subsequent to Dr. Broadbent's have had a very positive influence on the trends in orthodontic treatment. Dr. Broadbent reported the great mass of data he had compiled but did not attempt to draw any broad, general conclusion from his findings. The same has not been true with others. Conclusions have been advanced, and in general are to the effect that the growth pattern is constant, that the path of growth of a given landmark is registered in straight lines in sequential growth studies, that the facial pattern is very stable during growth, and that no changes were induced by orthodontic treatment except in the alveolar structure. These conclusions should not go unquestioned. A great deal of care should be exercised in drawing conclusions before complete and positive data have been obtained. In other words let us be certain that the conclusions are not colored by previously established opinion, and that the research was qualitative in its application and quantitative in its scope. Practicing orthodontists are inclined to accept quickly any pronouncement from the research centers if it gives any promise of being helpful in the solution of their daily mysteries. They are prone to attach broad interpretations to published findings of scientific works. For instance, there seems to be a very strong tendency among the orthodontists to conclude from the recent works reported on cephalometric growth

studies that since the growth pattern is relatively constant, then so far as the face and jaws are concerned, hereditary influence completely overshadows the environmental. Orthodontic appliance stimulation to obtain growth is considered as being practically useless. Hence, the only solution is to produce room for tooth alignment by removing teeth. Admitting that imperfect results have been the rule, the embracing of surgery as a compromise is acceptable as a correction of existing severe dysgnathic anomalies of the permanent dentition. The regrettable feature is the willingness of such a large percentage of the profession to adopt extraction as a regular component of treatment. The true goal is to prevent this condition by early measures applied to the growing child and the primary dentition.

Sufficient clarification has not been given the differences between the effects of environmental influences on the primary dentition as contrasted to the effects on the permanent dentition. The old, old controversy of heredity versus environment seems not to enjoy the same degrees of compromise in the orthodontic circles as it does in other parts of the medical world. Which of these phenomena exerts the greatest influence on the growth of the face, jaws, and teeth? Considerable study by experienced investigators working in the orthodontic field has been reported in recent years. Byron O. Hughes²⁵ of the University of Michigan stated in 1944, "Any living individual has his variabilities controlled by nature or heredity on the one hand, and by nurture or environment on the other. Growth is impossible without the contribution of both." And again, "Heredity always operates in an environment, and environment continuously operates upon heredity." This statement presents the relationship of heredity to environment as it is generally understood by the authorities on the subject. That heredity can act alone on the growth of the jaws without the interference of the usual influences of disease, ill health, nutrition, function, trauma, and muscular pressures is an untenable premise. It can be stated as a positive fact based on orthodontic experience that mouth-breathing, thumb-sucking, lip-biting, and tongue-thrusting, will produce bone and tooth anomalies. Genetics can never be an exact science for the very reason that every day of life finds the body adapting itself to the multitudinous variation of conditions under which it must live. The result is seen in the infinite number of complex variations of the succeeding generations. We can present positive evidence of detrimental effects of an adverse environment such as thumb-sucking and mouth-breathing. Why is it so difficult for some of us to accept the opposite reaction as being a result of a favorable environment? It would be highly illogical not to expect a favorable effect on growth to result from a favorable and beneficent environment. There is no mystery about what constitutes a favorable environment to the growing face and denture. To be specific, it requires first of all good bodily health. Good health means a body and mind which are functioning normally. It implies good nutrition, vigorous activity, and freedom from disease and accident. And, secondly, a favorable environment requires protection from the many local or primary etiological factors of dentofacial anomalies so well known to every orthodontist. It is very unfortunate that the orthodontist of today has not received and is not receiving

in universities the type of training which would enable him to apply the therapies necessary to promote the favorable environment of optimum bodily health. Until the orthodontist can unite these two equally important integrants of the environment affecting the growth and development of the face and jaws, he may be wise in hiding behind the curtain of "the limitations of mechanotherapy." George R. Moore,²⁶ who has worked with Hughes on studies of heredity, believes that the influence of the hereditary factor is very pronounced, and should be a paramount consideration in orthodontic diagnosis. It will be a great boon to the treatment of our cases when we are able to evaluate the genetic influence and probable growth limitation of our cases. But we certainly should not postpone treatment until the age when a considerable portion of the growth has occurred and it is too late to exert much favorable influence on it. Furthermore, while we were waiting for the permanent teeth to erupt, the influences of unfavorable environment would have continued their activity during those very important years of early growth.

The fourth reason presented for the wide shift to extraction as a policy of treatment was because the practitioner continues to approach his problem with a mechanical viewpoint. Orthodontics originated with the mechanical appliance as its single therapy, and during its growth as a specialty of dentistry has not responded well to the occasional efforts made to stress its orthopedic aspects. Unless we as a profession alter our point of view, our basic appraisal of our work, we probably should give up the attempt to treat our cases early in their dental development. We have learned conclusively that appliance stimulation alone will not make bone grow except within a very limited degree. We have quite fully explored that method of treating dentofacial anomalies and have found it to be inadequate. There are those who wish to worship at the shrine of mechanical perfection. Their idea of the ultimate appears to be to allow the child's dental growth to reach semimaturity, and then eliminate enough of the teeth to allow the remainder to be placed by simple tooth movement in relations which they admire. If this plan is to be followed, of course we should not treat early! Suppose, however, we view the matter in a different light. Say we were denied the use of mechanical appliances entirely and were obliged to do the best we could with all other therapies we could command. Then, first, we would contrive to promote the program of the pediatrician, to guard over the general physical health of the child during the first twelve or thirteen years of life. Secondly, we would use all possible means to promote the most favorable environment for the growing face and denture. This would include maintaining optimum health of the primary teeth, and correction of all local factors known to produce imbalance of developmental forces. In short, we would strive to keep the general health of the child at the highest possible levels; we would specialize on the health of the mouth and teeth of the infant and the young child, and we would put particular emphasis on good vigorous function of the teeth and musculature of the associated structures, including the nose and throat. After being limited in this manner for a number of years, our attitude toward our problem would be primarily physiologic. Then allow this new profession of dental orthopedists to incorporate mechanotherapy as a

supplement or adjunct to their primary and basic therapy, minimizing its use whenever possible, and we would see some real strides made in our progress. We, as a profession, have been slow to admit the true nature of the anomalies to which we have been devoting our efforts. Why should the profession swing back pendulum wise in a trial and error search for a panacea for its difficulties? Would it not be more logical to explore fully and conclusively the reasons why its efforts to guide and promote facial growth and development have not been successful? Are we not displaying a regrettable degree of impatience with the limitations of our present-day knowledge and ability? When Dr. James M. Dunning,²⁴ Dean of the Harvard School of Dental Medicine, stated in his recent report of the status of that program, "We cannot talk with much pride of our professional accomplishments until we can point to sharply dropping incidence curves similar to those the medical and public health workers have produced in even such complex diseases as tuberculosis," he could rightfully have been speaking directly to the orthodontists. The educational pioneering which has been under way at Harvard for the past six years is a movement in the right direction. Dental students and particularly orthodontists should receive a thorough training in the basic medical sciences. The Harvard plan, which is to be highly commended, is to give the dental students their first two years in the medical school along with the medical students. The problems of dentistry and medicine are basically identical; the teeth can no longer be considered a separate entity. The orthodontist must gradually, as he is properly trained and equipped, abandon his accustomed mechanotherapeutic approach. He must be trained as a dental orthopedist; trained to approach his problem from the medical aspect, and utilize the excellent mechanical appliances already developed as a secondary adjunct to his therapy. For the students of the future this will be relatively easy. For the orthodontist of today it will be very slow and difficult, but it is the inevitable direction in which the profession will progress.

Orthodontic practice of today is in danger of being diverted temporarily from a direct path to its ultimate goal, the ability to reduce the incidence of dentofacial anomalies. Treatment of the primary dentition, dedicated to the production of optimum growth and favorable development, is being forsaken for the less difficult achievement of treating the permanent dentition, the resulting abnormality, by a compromise treatment of mechanotherapy and surgery. This deviation from the true dental orthopedic goal has been produced by a combination of factors. The orthodontists, striving diligently to perfect their techniques and abilities, have been discouraged by their frequent failure to maintain the results which their appliance therapy had so painstakingly effected. The high percentage of relapses following retention has been interpreted by them as an inability to produce real bone growth. This suspicion has been strengthened by the interpretations placed on the data compiled by the research studies in roentgenographic cephalometrics. These studies have not been sufficiently extensive or exhaustive as yet to warrant such oracular assertions as have been made. The initial role played by nurture or environment has been neglected by some and suppressed by others, and, finally, the orthodontist has demonstrated a pertinacious affinity for viewing his problem as one to

be solved by mechanical appliances alone, even after he admits that solution to be inadequate. The time has arrived when he should realize that his principal objective is preventive treatment; that his first professional obligation is to the primary dentition; that he has no alternative but to attack this problem of growth disturbance as it should be done, by the incorporation of the science of pediatrics in the treatment of dentofacial anomalies.

The orthodontist of today must inevitably be the dental orthopedist of tomorrow.

REFERENCES

1. McCoy, James David: Applied Orthodontics, Philadelphia, 1931, Lea & Febiger, chap. 1, p. 22; chap. 15, p. 222.
2. Dewey, Martin, and Anderson, George M.: Practical Orthodontics, St. Louis, The C. V. Mosby Company, 1942, chap. 2, p. 268.
3. Strang, Robert H. W.: Textbook of Orthodontia, Philadelphia, 1943, Lea & Febiger, chap. 19, pp. 318-322.
4. Salzmann, J. A.: Principles of Orthodontia, Philadelphia, 1943, J. B. Lippincott Company, chap. 14, p. 440.
5. Angle, Edward H.: Malocclusion of the Teeth, ed. 6, Philadelphia, 1900, S. S. White Dental Mfg. Co.
6. Baker, Charles R.: The Advisability of Treatment of Malocclusion of Deciduous Dentures, *INT. J. ORTHODONTIA* 17: 948-957, 1931.
7. Baker, Charles R.: Time for Corrective Orthodontic Treatment, *INT. J. ORTHODONTIA* 23: 328-336, 1931.
8. Eby, Joseph D.: The Advantages of Early Treatment of Malocclusion, *INT. J. ORTHODONTIA* 23: 328-336, 1931.
9. Lewis, Samuel J.: Proper Time to Start Orthodontic Treatment, *J. Am. Dent. A.* 20: 693-706, 1936.
10. Spencer, Paul G.: Preventive Orthodontics, *AM. J. ORTHODONTICS AND ORAL SURG.* 32: 265-270, 1946.
11. Willett, Raymond C.: Preventive Orthodontics, *J. Am. Dent. A.* 23: 2257-2270, 1936.
12. Lischer, B. E.: Mechanical Treatment of Dental Anomalies, *J. Am. Dent. A.* 25: 397-401, 1938.
13. Hopkins, S. C.: Timing Orthodontic Procedures, *J. Am. Dent. A.* 26: 1067-1077, 1939.
14. Johnston, Leland R.: Dental Cosmos, December, 1938.
15. Brodie, Allan G.: Some Recent Observations on the Growth of the Face and Their Implications to the Orthodontist, *AM. J. ORTHODONTICS AND ORAL SURG.* 26: 741-757, 1940.
16. Bach, Ernest R.: Orthodontic Procedure, *J. Am. Dent. A.* 17: 1284-1293, 1930.
17. Hellman, Milo: The Optimum Time for Orthodontic Treatment, *J. Am. Dent. A.* 29: 622-639, 1942.
18. Tweed, Charles H.: A Philosophy of Orthodontic Treatment, *AM. J. ORTHODONTICS AND ORAL SURG.* 31: 74-103, 1945.
19. Nance, Hays N.: The Limitations of Orthodontic Treatment, *AM. J. ORTHODONTICS AND ORAL SURG.* 33: 177-223, 1948, 253-301, 1947.
20. Higley, L. B.: The Proper Time to Begin Orthodontic Treatment, *J. Am. Dent. A.* 30: 1329-1343, 1943.
21. Speidel, T. D., and Stoner, M. M.: Variations of Mandibular Incisor Axis in Adult Normal Occlusion, *AM. J. ORTHODONTICS AND ORAL SURG.* 30: 536-542, 1942.
22. Broadbent, B. Holly: A New X-Ray Technic and Its Application to Orthodontia, *Angle Orthodontist* 1: 45-66, 1931.
23. Krogman, W. M.: Facing Facts of Face Growth, *AM. J. ORTHODONTICS AND ORAL SURG.* 25: 724-731, 1939.
24. Dunning, James M.: Present Status of Program of Harvard School of Dental Medicine, *J. Am. Dent. A.* 36: 90-95, 1948.
25. Hughes, Byron O.: Heredity and Variation in the Dentofacial Complex, *AM. J. ORTHODONTICS AND ORAL SURG.* 30: 543-548, 1944.
26. Moore, George R.: Heredity as a Guide in Dentofacial Orthopedics, *AM. J. ORTHODONTICS AND ORAL SURG.* 30: 549-554, 1944.
27. Weinberger, B. W.: Orthodontics—An Historical Review of Its Origin and Evolution, St. Louis, 1926, The C. V. Mosby Company.
28. Silver, Edward J.: Forsyth Orthodontic Survey of Untreated Cases, *AM. J. ORTHODONTICS AND ORAL SURG.* 30: 635-659, 1944.

CASE REPORT

DALLAS R. McCAULEY, D.D.S., BEVERLY HILLS, CALIF.

CASE 1

1. *Title.*—J. B., girl, white, aged 11 years, 6 months.
2. *Diagnosis.*—The anomaly presented the following relations to the three cranial planes:

A. Raphe median plane:

Maxilla—Favorable alveolar and posterior dental relations.

Upper left cuspid in severe contraction (impacted).

Mandible—Favorable relations with minor irregularities.

B. Frankfort horizontal plane:

Maxilla—Central incisors presented mild abstraction.

Mandible—All incisors presented mild attraction.

C. Orbital plane:

Maxilla—Favorable relation.

Mandible—Mild retraction, total.

The left maxillary and the right mandibular primary cuspids had been retained in the permanent denture.

The roentgenographic examination disclosed the upper left permanent cuspid to be normal in shape, favorable in prognosis.

3. *History and General Clinical Picture.*—The infant's health had been uneventful, with a history of no serious illness during childhood. Tonsils and adenoids had been removed at the age of 8 years. The patient was below average height, presented normal-sized tongue, watery saliva, good color and tone of mucosa, favorable development of facial muscles, nasal breathing, and the average number of dental restorations.

4. *Etiology.*—The habit of sucking the thumb evidently had displaced the maxillary incisors labially, contributing to the overbite and mandibular retraction. The impaction of the maxillary cuspid very probably was related to the resistance to resorption of the primary cuspid root.

5. *Plan of Treatment.*—The lower right primary cuspid was extracted and the resulting space utilized to align properly the remaining mandibular teeth. The upper left cuspid was extracted and the crown of the permanent cuspid was well exposed by surgical removal of overlying tissue. This impacted tooth was then moved to position.

This case report was submitted to the American Board of Orthodontics in partial fulfillment of the author's requirements for certification.

The maxillary incisors were carried lingually, and the mandibular structure brought mesially by the use of intermaxillary elastics.

An open tube round wire appliance, with removable lingual stabilizers, was used. Bands were placed on the twelve incisors and the four first molars. Rotations were accomplished by means of silk ligatures. In the later stages of treatment, masseter muscle exercise was prescribed.



Fig. 1.

6. Progress.—Progress achieved from treatment of this patient was average, steady, and uneventful. The patient lived some distance away, and appointments were made at three- and four-week intervals. The abnormally shaped upper left lateral incisor presented the most noticeable resistance to correction.

Treatment of the patient was started in May, 1943, and retainers were placed in December, 1944.

7. *Secondary Treatment.*—A maxillary Hawley retainer with incisal bite guide was placed at the conclusion of active treatment and was worn day and night for a period of eighteen months. Instructions were given for it to be worn at night until the age of 20. The patient was seen at three- and four-month intervals during this period.

8. *Results Achieved.*—The accompanying denture reproductions were taken at the age of 16, some two years out of full-time retention. We are reasonably assured of a permanent correction of the mandibular retraction, and the upper left cuspid is in normal relation and is vital.



Fig. 2.

9. *Observations and Conclusions.*—The patient, who presented a promise of extended treatment of questionable prognosis in certain respects, responded satisfactorily to treatment. Since the diagnosis presented no particular problem, the success of the treatment probably lies in the good health and fine cooperation presented by the patient.



Fig. 3.

10. Posttreatment Findings.—Three and one-half years following removal of active appliances, the patient presents a satisfactory state of function and retention. The mandibular third molars which are partially impacted will be given ample opportunity to erupt, two to three years yet.

410 S. BEVERLY DRIVE.

CASE REPORT

DALLAS R. McCAULEY, D.D.S., BEVERLY HILLS, CALIF.

CASE 5

1. *Title*.—J. C., boy, white, aged 6 years, 7 months,
2. *Diagnosis*.—The anomaly presented the following relations to the three cranial planes:

A. Raphe median plane:

Maxilla—contraction mild.

Upper right first permanent molar in more marked contraction.

Mandible—contraction mild.

B. Frankfort horizontal plane:

Maxilla—Incisal attraction, mild.

Mandible—Incisal abstraction, mild.

C. Orbital plane:

Maxilla—protraction, total, mild.

Mandible—protraction, total, mild.

The lower left primary cuspid had been lost from ectopic eruption.

Roentgenographic examination presented no condition of unusual or abnormal interest.

3. *History and General Clinical Picture*.—This patient presented a history of good health, both in infancy and in early childhood. He was of sturdy physique, large skeletal structure, and presented a condition of good dental health. The tongue was average size; the tonsils were present, and of large size but not inflamed. The function of the tongue was perverted, presenting a habit of thrusting it between the anterior teeth during deglutition. The nutrition was good. The prognosis was considered poor, principally because of the evident anterior displacement of the teeth.

4. *Etiology*.—The etiology in this case appeared to be clearly a result of the abnormal tongue function tending to drive the teeth anteriorly, and secondarily from the early loss of the lower left primary cuspid. The medullary bone structure was considered to be sufficient; that is, the anomaly was not a result of inadequate growth of supporting bone, but rather a mesial drifting of the teeth in the bone.

5. *Plan of Treatment*.—Two stages of treatment were planned: the first to regain the space lost by undesirable tooth shifting and establish a favorable function of the tongue; the second to continue the same therapy when the permanent teeth erupted.

This case report was submitted to the American Board of Orthodontics in partial fulfillment of the author's requirements for certification.

Round labial arch wires, 0.025 inch, and open tubes were employed on the maxilla and the mandible. Removable full lingual arches were used on both jaws. The six-year molars and incisors including primary cuspids were banded. Lingual finger springs, 0.018 inch, were employed as expansion agents. The appliance was constructed entirely of chromium alloy (stainless steel), as are all of the operators' appliances. The mandibular-incisal area received labial stimulation. The very favorable lip development and function aided in the reflecting of this force to result in distal stimulation of the anchor teeth, six-year molars.



Fig. 1.

This treatment was continued for sixteen months. At that time the lateral incisors had erupted, and the open-bite had been almost entirely reduced. This occurred as a result of the discontinuance of the tongue-thrusting habit.

The maxillary lingual appliance and the full mandibular treatment appliance were utilized as retainers during the early growth period. Later the

maxillary could be dispensed with, but the mandibular was kept in place until the second series of treatments was started in June, 1945.

It was necessary to band all of the mandibular premolars eventually to obtain adequate room for the lower left cuspid, the last tooth to erupt. No appliance treatment of the maxilla was required in the second series. Appliance therapy was continued eleven months on the mandibular teeth in the second stage of treatment.



Fig. 2.

6. Progress of the Patient.—This patient, as has been related, required a prolonged over-all period of treatment, but the response was considered good. The treatment was not rushed. It was intended that treatment at no time should get ahead of normal growth rate.

7. Secondary Treatment.—This patient did not require retention of the maxillary teeth. The mandibular teeth were retained with the full treatment

appliance, the bands being removed two at a time in measured sequence. Finally, the premolar and incisor bands were all eliminated, leaving fitted lingual arch fitting under cuspid lingual lugs. This final retaining appliance was kept in place on the teeth until the summer of 1947. Appointments were more frequent during the earlier stages of this retention, the cemented band type requiring more attention. The latter portion required visits at three-month intervals.

8. *Results Achieved.*—The incipient double protrusion was eliminated, and the facial harmony achieved was quite satisfactory. The patient promises to have adequate room for the third molars which the lateral-jaw roentgenograms indicate to be in favorable position. The functional relation of the teeth is satisfactory, and the retention appears to be successful six months following removal of all appliances.

9. *Observations and Conclusions.*—The successful conclusion of this case in view of the questionable prognosis is attributed to the slow nature of the treatment coupled with the optimum skeletal growth and jaw development experienced by the patient. In the operator's past experience, this result is one of the bright spots in treatment of incipient double protrusion without resorting to extraction. The problem is to know in advance which patient will experience the required response to treatment.

10. *Posttreatment Findings.*—Intraoral roentgenograms, lateral-jaw roentgenograms, gnathostatic denture reproductions, and photostatic photographs are included in the posttreatment findings six months after the removal of all retaining appliances.

410 S. BEVERLY DRIVE.

In Memoriam

THOMAS OSCAR GORMAN

1871-1948

Thomas Oscar Gorman was born in Page, Texas, Aug. 16, 1871, where he lived until he was 18 years old. He decided that he would make dentistry his career, and as was the custom of those days, he placed himself in the hands of a preceptor.

The man that he associated himself with was Dr. Milton Merchant of Giddings, Texas. At the age of 21, he became a student of the Baltimore College of Dental Surgery. He came back to Texas and opened his first office in Yoakum. In 1894 he moved to Caldwell, where he met Miss Lila Collins. They were married in 1899. Dr. Gorman also practiced in San Angelo for a short time.



THOMAS OSCAR GORMAN

Dr. Gorman was the father of three children, and is survived by his wife and one daughter, Mrs. Archie Helland.

In 1918 he decided that orthodontics would be his specialty, so he went to Kansas City where he took a special course in this branch of dentistry. He brought his family to San Antonio and was very successful in his field.

Dr. Gorman and Dr. Duckworth associated themselves together in 1919. This association continued until Dr. Gorman's death on Aug. 6, 1948.

Dr. Gorman was a member of the First Baptist Church, The Texas Lodge No. 8, A.F.&A.M., The American Association of Orthodontists, was the first president of the Southwestern Society of Orthodontists, and a member of the San Antonio District, the State, and the American Dental Associations.

Tom was loved by all who knew him. His booming voice will be missed by his friends in the Medical Arts Building, along with his many friends and patients that he has served these past thirty years.

Oren A. Oliver Testimonial and Seminar

UNDER the direction of a committee composed of Walter T. McFall, E. C. Lunsford, Boyd W. Tarpley, Frank P. Bowyer, and Leigh C. Fairbank, the Oren A. Oliver testimonial and seminar were held at the Mayflower Hotel, Washington, D. C., March 11 and 12, 1949. The testimonial was conceived by the committee in order to pay tribute to a man who particularly during the war as president of the American Dental Association contributed a tremendous amount of time and effort to the service of the dental profession and the war effort. All sessions were held at the Mayflower Hotel except the Sunday morning International College of Dentists' breakfast which was held at Hotel Shoreham.



OREN A. OLIVER

More than three hundred fifty people attended. A fellowship smoker was held for the men while the ladies had a dinner at Harvey's on Friday night. More than sixteen tributes were paid to the honored guest. Everyone present was personally introduced, and the finest spirit of camaraderie imaginable was the order of the day and the night. Physicians, dentists, friends, and their

wives from more than twenty states, Canada, and four foreign countries came to pay homage and their good wishes to Dr. Oliver. Dr. Oliver's friends were there from all over America: Texas, Oklahoma, Wyoming, Florida, Minnesota, Illinois, the Atlantic Seaboard, New England, and the Far West. Although the Southwestern Society of Orthodontists met in Fort Worth on March 13-16, more than fifteen members from the Southwest arrived to pay their respects to the record of Dr. Oliver.

The Honorable Paul V. McNutt was present to thank Dr. Oliver personally for his work during the war when Mr. McNutt was the leader and director of the magnificent effort in war man power. Senator Lester Hunt from Wyoming, Congressman Mendel Rivers from South Carolina, Congressman Walter Brehm from Minnesota, six of the congressmen from Tennessee, and many others came and stayed to tell this man what he had meant to them as a citizen "who believed in and proved he believed in public duty as well as private thinking." The Governor of Tennessee sent personal greetings, and Representative Dr. Hutcheson, State Health Commissioner of Tennessee, attended.

Several state dental associations, the Psi Omega Fraternity, the International College of dentists, civic, social, religious, and fraternal groups all sent resolutions, plaques, and gifts, and more than three thousand letters, wires, radiograms, and remembrances were received for Dr. Oliver. The program was complete from Friday evening until Sunday midday.

The luncheon for Dr. Oliver was held on Saturday, at which time the technicolor movie prepared by Dr. Oliver and Dr. Philip E. Adams was shown for the first time.

Mr. Howard Chandler Christy did a portrait of Dr. Oliver and this was presented to the honored guest as a token of appreciation, in part, for the manifold things he has done for dentistry and orthodontics. His former office associates presented him with a beautiful wrist watch with a suitable inscription. All letters, notes, wires, and remembrances were given Dr. Oliver, together with a book of original signatures of everyone attending the testimonial and seminar. The committee and all who made possible this splendid occasion are truly thankful for all that was done to show Dr. Oliver in what high esteem he is regarded.

The meeting started on Friday evening with a smoker; the Seminar followed on Saturday morning, and then the luncheon.

The luncheon program was as follows:

Call to Order. Frank P. Bowyer.

Welcome. Boyd W. Tarpley.

Toastmaster. Walter T. McFall.

American Association of Orthodontists. Lowrie J. Porter, President.

Southern Society of Orthodontists. Sam J. Gore, President.

Southwestern Society of Orthodontists. Brooks Bell.

American Board of Orthodontics. Stephen C. Hopkins, Secretary.

Kansas City University, Kansas City-Western Dental College.

Washington University School of Dentistry. Otto W. Brandhorst, Dean.

Supreme Council, Psi Omega. Frank F. Lamons.

Kansas State Dental Association. F. A. Richmond.

On Sunday at 10:00 A.M. the International College of Dentists gave a breakfast in honor of Dr. Oliver. The speakers were Dr. Walter T. McFall, Dr. Jack Burke, Dr. Paul Aufderheide, Dr. Donald Clawson, Dr. Clyde Minges, and Dr. Philip E. Adams.

Other speakers were: Dr. Frederick R. Aldrich, Dr. Roy Elam, Dr. Jas. Vaughn, Dr. Claude R. Wood, Dr. Russell E. Irish, and Dr. Joseph D. Eby, Dr. Lowrie Porter, President of the American Association of Orthodontists, extended personal greetings from Dr. John V. Mershon.

The banquet comprised the following program:

Call to Order. E. C. Lunsford.

Invocation. Walter T. McFall.

Welcome. Leigh C. Fairbank.

Toastmaster. LeRoy M. S. Miner.

Greetings. Clyde Minges, President, American Dental Association.

R. H. Hutcheson, M.D., Commissioner of Health, The Commonwealth of Tennessee.

Jeff Justis, Secretary, Tennessee State Dental Association.

G. D. Timmons, Dean, Temple University, School of Dentistry.

Robert Thomas, Trustee, American Dental Association.

Philip E. Adams, President-Elect, American Dental Association.

The Honorable Lester Hunt, United States Senator from Wyoming.

The Honorable Paul V. McNutt.

Address. Captain C. Raymond Wells, United States Naval Reserve.

Dr. Walter T. McFall of Asheville, North Carolina, made the presentation of the Howard Chandler Christy Portrait in behalf of the committee. There were other presentations as follows:

Dr. U. P. Maddux, Dr. W. Wayne White, Kansas City-Western Dental College, Dr. Boyd W. Tarpley, Dr. Oliver's former associates, Dr. Frank F. Lamons and Dr. Fred Richmond, Psi Omega and Kansas City Dental Association.

Department of Orthodontic Abstracts and Reviews

Edited by

DR. J. A. SALZMANN, NEW YORK CITY

All communications concerning further information about abstracted material and the acceptance of articles or books for consideration in this department should be addressed to Dr. J. A. Salzmänn, 654 Madison Avenue, New York City

Oral Surgery: By Kurt H. Thoma, D.M.D., Professor of Oral Surgery and Brackett Professor of Oral Pathology, Harvard University; Oral Surgeon and Chief of Dental Department, Massachusetts General Hospital; Honorary Professor of the Odontologie Faculty, San Carlos University, Guatemala; Visiting Lecturer on Oral Surgery, University of Pennsylvania; Oral Surgeon, Brooks Hospital; Consulting Oral Surgeon, New England Baptist Hospital, Beth Israel Hospital, Tumor Department of Boston Dispensary, Joseph H. Pratt Diagnostic Hospital, Faulkner Hospital; Consultant in Oral Surgery, United States Public Health Service; Marine Hospital, Boston; Consultant in Oral Pathology to the Surgeon General, Department of the Army, Washintgon, D. C. St. Louis, The C. V. Mosby Company, 1948.

Thoma is well known for the thoroughness of his textbooks. Beginning with the principles of surgery and care of the patient, the author discusses dentoalveolar surgery and treatment of traumatic diseases of the jaws. The extraction of deciduous teeth which is frequently omitted or treated only in passing is here given due attention. The author points out that the deciduous roots do not always resorb and that long spicules of the roots may remain wedged between the developing permanent teeth. Extraction of these spicules is frequently difficult and may be attended by damage to permanent tooth buds.

It has often appeared to this reviewer that much of tooth extraction is nothing more or less than a direct assault on the patient, in which part of the alveolar bone is broken while the tooth is forcibly separated from the jaw. A photograph of such an extraction appears in Volume I, page 45, of Thoma's book. If the foregoing practice is to be eliminated from dental operations, the operator will have to give more attention to dentoalveolar surgery. This method of tooth extraction is described and illustrated in great detail and should prove of immense practical value to the general dentist who includes the extraction of teeth in his everyday service. Postoperative care in dentoalveolar surgery is duly discussed and illustrated. Specific methods of procedure are provided.

Excision of the labial frenum is discussed, and indications and contraindications are given for this operation. To this reviewer frenum operations in patients in whom gross abnormalities are not present is not only a waste of effort and involved surgical procedure but is also detrimental to the further development of the dentition of the child. Frenum operations have no effect on the position of the teeth without orthodontic intervention. When orthodontic intervention is used, the operation is largely unnecessary except in certain extreme cases.

Methods of treated traumatic diseases and injuries of the jaws are discussed in detail and profusely illustrated.

The Upper Respiratory Musculature and Orthodontics. Part I: By C. F. Ballard, M.R.C.S.(Eng.), L.R.C.P. (London), L.D.S.(Eng.). *D. Record* 68: 1-5, January, 1948.

The origin of muscle posture and behavior appears to be one of the fundamental factors in future orthodontic research with important bearings on etiology, diagnosis, and treatment.

In my conception of the positioning of the teeth in the oral cavity, the factors can be resolved into four groups. They are as follows:

1. The skeletal pattern.
2. The muscle pattern.
3. Dentoalveolar factors.
4. Occlusal forces.

The skeletal pattern is genetically determined and cannot be altered by orthodontic treatment. All the literature discussing factors governing bone growth usually comes to the general conclusion that, although evidence is inconclusive, the main factors are probably hereditary.

What I have said so far applies to the basal bone of the maxilla and mandible. The alveolar bone and teeth are built up on these bones from the dental base. The relationship of these dentoalveolar structures to the basal bone is also intrinsically determined. The position of alveolar bone as built up on these dental bases is further determined by the position of the crowns of the teeth as they lie in equilibrium within muscle forces. Therefore, there is no intrinsic growth factor in alveolar bone, but its shape and position are determined by the two factors just mentioned; first, the intrinsically determined relationship of the dentoalveolar structure to basal bone and second, the position of equilibrium within muscle forces which the crowns of the teeth assume as they erupt.

We can now consider the second group of factors which determine the position of the teeth within the oral cavity, that is, the position of equilibrium which the teeth assume, normal or abnormal, within the muscle forces. When we realize that slight pressure applied to the crown of a tooth will produce a physiological response in alveolar bone, I think we must admit that in all our orthodontic cases we have to regard the teeth as we see them, normal or abnormal, as being in the position of equilibrium.

Because we cannot alter the relationship of mandibular basal bone to maxillary basal bone, and because we cannot alter the position of the dental bases on either of these bones, then successful treatment in such cases is accomplished by altering the axial inclinations of the incisor teeth to bring the crowns into correct anatomical relationship. If the buccal segments are in continuous contact-point relationship with these abnormally inclined incisors, as they usually are, then they similarly require mesial or distal movement to produce normal occlusion; this is what actually happens in most successfully treated Class 2, Division 1, cases. The small percentage of complete failures is probably the result of the skeletal pattern being so abnormal and unalterable that it is impossible to produce normal occlusion by this change of axial inclination.

If the crowns of the teeth were in equilibrium in muscle forces and if the relationship of basal bone were not the cause of the abnormality, then this must have been produced by the said muscle forces. Further, if the abnormality is inherited, then the muscle abnormality must be inherited, and that is my contention.

If then, as I believe, a very large number of the abnormalities we see are the result of abnormal muscle action, we must commence serious study of the

genetics of muscle behavior; we must attempt to determine what are inherited characteristics of behavior, what are acquired, what are alterable, and what are not.

The work of Gesell and Stockard and my own observations leave no doubt in my mind that postural patterns and patterns of behavior of the musculature are intrinsic in origin—genetically determined.

My third and fourth factors in the positioning of the teeth do not enter into the discussion because they only produce local changes of tooth position and not important changes of arch form within muscle forces, or changes of skeletal pattern.

Children under the age of about 14 years are not capable of applying prolonged conscious effort to the correction of abnormal posture and, therefore, they must be treated through subconscious levels; for this we use a monobloc appliance. If the abnormal muscle action has produced an abnormal dentoalveolar position, then this must be corrected prior to the use of the monobloc appliance.

If the patient is about 14 years of age, or perhaps it would be better to say when he or she is reaching the stage of muscle and mental maturity, then a conscious effort on the part of the patient will usually produce the required change in muscle pattern. This is particularly the case when, for instance, a girl who has just been treated for a Class II, Division 1 abnormality becomes conscious of her appearance and realizes that she looks much better with her lips together.

Just as some cases may be complete failures because of the skeletal pattern not being alterable, so some are untreatable because the muscle pattern is unalterable.

The Upper Respiratory Musculature and Orthodontics. Part II: By E. Gwynne-Evans, M.B., B.S. (London), *D. Record* 68: 5-21, January, 1948.

By far the majority of young children referred to ear, nose, and throat clinics for "tonsils and adenoids" are suffering from the effects of a variety of functional disturbances involving the feeding, breathing, and speech mechanisms which, in themselves, are not so much due to abnormal behavior of the musculature as to the persistence of infantile characteristics.

Although in time the tonsils and adenoids may be removed, these functional disturbances tend to remain until the child is said "to have grown out of them." By then, however, their ill effects may have become permanent.

Ultimately will come this question, "What alternative form of service can we offer?" I believe that a closer association between the fields of child welfare, rhinology, orthodontics, and speech therapy will provide the answer.

We considered that the most serious cause of functional disturbance among the facial muscles was loss of "tone" secondary to any number of contributory factors, both of neurogenic and environmental origin. The phenomenon of tonus is difficult to comprehend but, in effect, a few muscle fibers are contracting at one time, relaxing, and as many others are contracting at the next instant in a rhythmical cycle of activity and rest. Being reciprocal in its mode of working, opposing groups of muscles are evenly balanced one with the other when at rest, movements are correlated, and smooth, effortless action is largely secured. The acquirement of this property of neuromuscular activity among the skeletal muscles distinguishes the infant from the fetus and becomes apparent first in those muscles concerned in postural balance. Eventually, a background of tonus pervades all our volun-

tary musculature, but often appears late among the shoulder and jaw muscles, so that winged scapulae and a dropped mandible are common features in childhood.

We believed that disturbances were only partial and did not affect all the functions of a particular group of muscles, but as the function of any muscle depended upon the evolutionary history of that muscle, the last of the functions to be acquired on the evolutionary scale would be the first affected. This hypothesis was not entirely satisfactory but served to explain the frequency of certain defective speech sounds and the impassiveness of the muscles of facial expression, whilst the breathing and feeding mechanisms themselves remained undisturbed.

At that time, our orthodontist, Mr. Nove, was of the opinion that mal-related jaws produced a state of imbalance between the muscles, and he used the Andresen appliance as an intraoral splint to obtain an optimum relationship between the jaws and so restore facial harmony.

I agreed that in some cases failure of the orbicularis oris to keep the lips closed was due to a state of imbalance among the facial muscles secondary to a malrelationship between the jaws, but when we came to consider the origin of disturbances in muscle function related to the breathing and feeding mechanisms, we found that our views were divergent.

In 1946, Nove published his concept of cervicofacial orthopedics which starts from the fact that the functional efficiency of the entire group of cervicofacial muscles is associated with a normal craniomandibular relationship.

Whilst he laid stress on skeletal deformities as causative factors underlying functional disturbances of the breathing and feeding mechanisms, my attention was being drawn more and more to the significance of underlying principles of neuromuscular activity. I considered that motor behavior of muscles, although modified by environmental factors, was planned within the central nervous system long before birth; that "tonus" was the basis of muscle balance and was essentially of neurogenic origin; that reserves of tonus among the voluntary muscles, although subject to environmental conditions, were gradually acquired and built up as the central nervous system matured and groups of muscles were progressively selected, coordinated, and controlled.

I agreed that the teeth, jaws, and cervicofacial muscles constituted a functional unit, but I could not lose sight of the fact that it was the central nervous system that made them so.

I was of the opinion that muscle behavior was predetermined, patterned, and dominated by the central nervous system, whatever the relationship between the jaws might be. So it came about that I decided to investigate our problem further by inquiring into the manner in which the central nervous system was planned and organized to react to environmental conditions.

Dr. Whillis described and showed us on a film the behavior of the orofacial musculature in drinking and swallowing. Previously, Mr. Rix had demonstrated to us also, through the medium of a film, the persistence of the infantile pattern of behavior in swallowing among certain children.

Both these workers have stressed the importance of functional closure of the intermaxillary space in swallowing. As, in nasal breathing, I am also concerned in the functional closure of the intermaxillary space, although only as far as the teeth are held together intermittently in light occlusion.

Our field of investigation is so vast and possible lines of approach are so many that I think it is important for us to review the child as a whole, so that we may get some idea of perspective.

Generally, it may be said that prenatal development recapitulates the evolution of the species and, in the first period of life, the evolution of

primitive man. The major part of development has been completed within eight to ten months so that even if premature birth occurs, growth is so far advanced that the infant may yet survive. But of all the species, man has the longest period of immaturity.

As far as the neuromuscular system is concerned, we mean by "maturation" that the supervisory machinery of the brain is working according to a plan and that groups of muscles are progressively selected, coordinated, and controlled for the service of the child's future activities in the world that awaits him. Concurrently, infantile characteristics of muscle behavior are being inhibited and in time will be lost.

Soon after the fetal stage has commenced, the neuromuscular system shows signs of organization and it is during this early period that the central nervous system begins to "pattern" muscle behavior. When the time comes for using the developing tactile and muscle senses, as well as those of the eyes and ears, the central nervous system plays a leading part in building up specific movements out of the basic patterns of muscle behavior.

From the moment of birth, the infant explores the physical and social world with his muscles. Arms, legs, hands, feet, mouth, lips, tongue, and palate are all involved. One of the earliest reactions to environment is the infant cry which in itself is an emotional expression that involves a total reflex response of the facial musculature without special expressive movements of the tongue or lips. As the organization of the nervous system advances, the facial muscles become more versatile. The respiratory and sucking muscle patterns are combined with the voice stream so that the previously undifferentiated cry is transformed into gurgling and babbling. In response to contacts with the social world, he indulges in sound play which delights both himself and his admiring parents.

At the same time, the muscles of the eyes are coordinated and controlled so that vision can be linked with movements of the arms and hands. Objects are inspected, grasped, and brought to the mouth. "Mouthing" is one of the ways a child discovers his surroundings; eyes, arms, hands, mouth, and feet share in the process. All these reactions are instinctive and reflex in nature. He is just as happy with a spoon as with a rattle, and he may just as soon suck his big toe as his thumb; but, behind all this pantomime lies a purpose—that of coordinating and controlling his muscle activities until in time they become obedient to the developing mind. By slow degrees he learns to chew and initiate the act of swallowing, to sit by himself, crawl, and stand. Once he can stand without support, his hands are freed to make new conquests. The hand-to-mouth reaction, however, persists for some time, and he is inclined to put objects into his mouth or suck his thumb until about 5 years of age or later.

In the same way that the eyes guide muscles of the arms and hands in the execution of finer movements, so a parallel growth of intelligence and understanding enables the child to link his auditory sense with movements of the orofacial muscles involved in sound play. By imitating and echoing the "baby talk" of his mother, the muscle patterns of sound play are reshaped into speech patterns which eventually come to have meaning so that words and, finally, sentences are formed.

Meanwhile, the muscles of facial expression reflect his pleasures and his fears. He smiles and laughs, or whimpers and cries, but as the processes of growing up proceed, emotional reactions are inhibited in favor of his more intellectual capabilities and the facial expression takes on the maturer characteristics of the individual.

However, until the central nervous system is sufficiently mature to maintain an adequate degree of coordination and control of the facial muscles at rest, they tend to remain flaccid and after the first few months of life the lips, more often than not, remain apart.

With regard to the underlying machinery of all this activity, the combination of inborn reactions might be compared with the engineer's "blueprints" and the subsequent patterns of motor behavior, the designer's "jigs" or "dies" that have been gradually fashioned throughout the ages and successively make their appearance to allow the outgrowth of more complex patterns of movement.

For example, as an outgrowth from the attitudinal reflex actions come not only the ability to stand and walk, but also such specific movements as may be seen in building a tower of bricks or in the use of a knife and fork. Similarly, out of the sucking behavior pattern will grow not only the processes of chewing but also highly complex movements concerned in speech.

Our reactions to environment are not just the result of miscellaneous pinpricks. As any blind man will tell us, we are living in a world of patterned stimuli. By means of receptors in the skin, muscles, tendons, or joints, as well as those in the retina and cochlea, patterned impulses are transmitted through sensory pathways parallel with those of the executive system to the higher centers in the brain.

The dentoalveolar substance is set on a bony base within a group of reciprocal muscles whose behavior is reshaped as the feeding and breathing mechanisms mature. Not only this, but both Rix and Ballard have also pointed out the significance of persistent infantile patterns of muscle behavior in relation to malalignment of the teeth.

We are adopting the Andresen appliance as a means of supplying the necessary patterned stimuli to which the cerebral tissue will react. We hope by its use, not as an intraoral splint but as a cast of a closed rigid-walled oral cavity, to build up a mental image of a mature pattern of mouth behavior in the brain, and we hope that infantile characteristics will be inhibited.

We are particularly interested in thumb-sucking and mouth-breathing; both are closely related infantile characteristics. Whereas we regard thumb-sucking as a residual phenomenon of the infantile hand-to-mouth reaction that commonly recurs in moments of emotional stress and concerns the orthodontist more than the rhinologist, we believe that mouth-breathing is by no means always secondary to nasal obstruction but often is a manifestation of delayed maturation of the behavior of the facial musculature which concerns the rhinologist more than the orthodontist.

We take the view that growth patterns of the jaws (i.e., basal bone) are predetermined genetically and are unaltered by either of these functional disorders, but when thumb-sucking persists, the dentoalveolar pattern may be profoundly disturbed. In mouth-breathers, however, we have found that the dentoalveolar pattern is not necessarily affected unless there are other abnormalities of muscle behavior present which can be recognized clinically as residual characteristics of the sucking pattern.

We have decided to make every effort to assist maturation of muscle behavior and particularly to inhibit infantile characteristics which, if allowed to persist for too long, would influence adversely the growth of the dentoalveolar pattern.

Speech therapists already are solving many of their problems on similar lines of approach by observing the succession of developmental patterns that appear as the muscles of the tongue, lips, and palate are combined in sound play, speech, and language behavior.

The more I have thought about the control of thumb-sucking and associated sucking habits in relation to dental irregularities or of mouth-breathing in relation to upper respiratory infection, the more certain I have felt that we also should be concerned not only with the order but also with the timing of the successive patterns of behavior that make their appearance as the feeding and breathing processes reach a stage of maturity.

The behavior pattern of the orofacial muscles in sucking and squirting fluid into the pharynx is entirely reshaped as the central nervous system organizes the musculature for chewing and swallowing semisolid food.

As far back as 1888, Auerbach drew attention to the fact that there must be an enlargement of the oral cavity with the mouth closed to produce a negative pressure in the act of sucking.

We have found that in nasal breathing among infants and young children, the tongue almost completely fills the intermaxillary space whilst the shadow of the soft palate is moulded round the base of the tongue. Sometimes there may be a small air space between the tongue and palate, but this space is completely obliterated by the act of sucking.

Although our observations confirm Auerbach's conception, particularly with regard to the fact that the palatolingual space is closed during the act of sucking, the point of greater interest is that he describes *one* change in the behavior of the musculature.

Bieber (1940) included in the behavior of the sucking response, lip-pouting, mouth-opening, and tongue protrusion. With the advent of spoon feeding, the sucking response is modified and the behavior of the oral muscles undergoes a change as the pouting of the lips is replaced by a drawing in of the lips over the spoon.

As the tooth-bearing margins grow and the teeth erupt, the space between the gum pads is gradually lessened and a further adjustment in muscle behavior is brought about. In response to biting, the masticatory muscles are laboriously coordinated in the process of chewing and the lateral thrust of the tongue forces the food between the teeth. The facial musculature, no longer necessary as part of the wall of the oral cavity, now performs the function of keeping the vestibule of the mouth clear of food. On swallowing, the jaws are held firmly together to form a rigid wall which allows the backward propulsion of the food into the pharynx by the tongue and mylohyoid muscles.

Rix has pointed out that the facial muscles take little or no share in the swallowing process and that only in drinking or sucking fluids is a space left between the teeth. When resting, the functional closure of the intermaxillary space is determined by the reserves of tonus built up among the masticatory muscles to overcome any effect of gravity on the mandible. Closure of the orbicularis oris, however, is more dependent on the play of attendant muscles of facial expression that characterize the individual. Gesell, who has applied the principles of maturation to the movements of the mouth which he has traced through infancy to childhood, lays stress on the fact that "... control is primarily achieved by the slow and steady progress of maturation."

With regard to the changes that occur in the behavior of the muscles concerned in nasal breathing, we must remember that in infancy the facial muscles are flaccid and closure of the lips is but part of the total behavior pattern of the oral musculature involved in the sucking process.

After the first few months of life, when spoon-feeding is introduced, there appear to be many infants who only keep their lips closed when sucking a dummy or their thumb. We have repeatedly observed, however, that an open mouth is not necessarily indicative of mouth-breathing but that the tongue

almost completely fills the space between the jaws, and the palatal velum forms a tense low arch which meets the posterior mass of the tongue to close off the oral cavity from the airway. The faucial pillars, tonsils, and the oropharynx are not exposed, and efforts to depress the tongue are met with considerable resistance by the lingual muscles.

Our observations have led us to believe that normally the tongue and soft palate are so far in contact one with the other in young children that not only is there an effective posterior oral seal during the act of sucking but there is also a muscular barrier to oral breathing. We also have evidence to show that this pattern may persist throughout life, but when sucking is no longer the predominant method of feeding, the tongue may fall away from the palate, particularly in the "hypotonic state" of some children. Should there be an added incompetence of the anterior oral musculature, mouth-breathing will supervene.

To sum up: as the structure of the nervous system develops, and as the oral musculature comes into the conscious plane, both the feeding and breathing processes rely more and more on the maturation of the behavior of the masticatory and facial musculatures, but less and less on the reflex coaptation of the tongue with the palate.

The Nature of Mouth-Breathing.—It is a common experience to find that an infant will persist in breathing through the nose in spite of partially occluded airways. The only satisfactory explanation seems to be that the behavior of the musculature has been so "patterned" by the central nervous system before birth that oral respiration does not supervene unless there is gross nasal obstruction, or undue relaxation of the musculature, or when the respiratory center may be so far affected that demands for adequate oxygenation must be met.

Mouth-breathing may be the result of habit following nasal obstruction in the past, but I cannot accept this explanation as a complete answer.

When we come to consider that in infancy there is a gap between the jaws and that the facial muscles are flaccid, the facial characteristics of the classical "mouth-breather" closely resemble those of the infantile countenance.

A dull mental outlook rather than a low intelligence level reflects a subnormal or delayed "upper motor neurone" influence. This is the primary factor responsible for the masklike facial expression, and the open mouth is but part of the clinical picture. It is not that the musculature cannot be coordinated but the new patterns have not become dominant, and there are times when the child does not choose to utilize his muscles. It is then that the child assumes the appearances of the so-called mouth-breather.

With regard to the dropped mandible, "the teeth apart" position of the jaws is as much a feature of the mouth-breather as it is of the "infantile swallow" described by Rix, so that I have wondered whether the failure to maintain closure of the intermaxillary space in mouth-breathers is not in itself largely due to immaturity of muscle behavior.

It should be remembered, however, that the clinical picture of the so-called mouth-breather is not necessarily indicative of true mouth-breathing, which only supervenes if there is a falling away of the tongue from the palate, or if there is direct interference with the palatolingual muscles due to enlarged tonsils and adenoids.

When we come to consider management of these cases, we should remember that as far as the motor behavior of the orofacial musculature is concerned, we are dealing primarily with groups of muscles whose movements are patterned within the central nervous system long before birth, and that some children reach a stage of maturity much later than others.

We take the view that there is frequent delay in the normal adjustments made in the progress toward higher levels of behavior and we feel that a key might be found to supply the necessary stimuli which would allow the nervous system to play its part in developing the natural sequence of behavior patterns.

I think the Andresen appliance in a modified form may prove to be that key. The Andresen appliance may be used to employ muscle forces for the movement of teeth on the principles of the inclined plane or intermaxillary traction, and in various other ways.

We have adopted the "monobloc" principle of the Andresen appliance not so much as an intraoral splint to employ muscle forces for the purpose of moving teeth, but as a cast of a closed rigid-walled oral cavity, with the intention of deliberately bringing about a change in mouth behavior.

We believe that at birth nasal respiration is just as dependent on the high degree of coordination between the posterior oral muscles involved in sucking as the act of sucking itself is dependent upon a free airway apart from the oral cavity. So our first line of approach to the control of mouth-breathing and sucking habits has been to use the Andresen appliance or monobloc, as we prefer to call it, as a stimulus to obtain a complete sucking response. The tensor veli palati muscle is the only muscle of the soft palate supplied by the mandibular division of the fifth cranial nerve. By employing serial profile radiography of the soft tissues, we have found that when the full sucking response is thus obtained, the tensor muscles of the soft palate are included and the palatolingual space is automatically closed. The anterior oral musculature envelops the appliance and whilst thus preoccupied, nasal respiration will continue.

The appliance is designed to be quite loose in the oral cavity and is constantly falling away from the maxilla only to be replaced by the musculature closing the jaws, so that our second line of approach has been to use the monobloc as a means of providing repeated stimuli to cause a functional closure of the intermaxillary space.

Our third line of approach has been to use the appliance as a stimulus to effect a change in the behavior of the oral musculature in deglutition. The upper and lower dentitions are integrated on swallowing, and a rigid-walled oral cavity is provided for the proper behavior of the tongue and particularly the mylohyoid muscle.

The appliance need only be used during rest periods in the day, but it should remain in the oral cavity all night for subconscious movements of the musculature, and recurrent acts of swallowing are present even in sleep.

The monobloc provides the child with a subconscious mental picture of a closed oral cavity, and the groundwork of a mature pattern of behavior is thus prepared. Young children are not aware of the sensations and movements of the muscles that develop out of the tasks set before them, but given those tasks, the musculature is utilized in a proper manner and a mature behavior pattern will grow out of the sucking pattern.

News and Notes

Central Section of the American Association of Orthodontists

The regular annual meeting of the Central Section of the American Association of Orthodontists will be held Sept. 25, 26, and 27, 1949, at the Sheraton Hotel, St. Louis, Missouri.

EARL E. SHEPARD, Secretary,
Lister Building, St. Louis, Missouri.

Philadelphia Society of Orthodontists

The spring meeting of the Philadelphia Society of Orthodontists was held Friday, April 29, 1949, at 2:30 P.M. at the Hotel Warwick, and was followed by dinner. The essayist was Dr. Spencer Atkinson of Pasadena, California.

The officers elected for the year 1949-1950 are:

President, Dr. Harry B. Wright, Medical Arts Building.

Secretary-Treasurer, Dr. John M. Jackson, Medical Arts Building.

Pan-American Course in Orthodontics

Under the sponsorship of the Association of Orthodontists of Cuba and the faculty of the University of Habana, a Pan-American course in orthodontics was held in Cuba the week of Feb. 12-18, 1949. The teachers were Dr. Joseph E. Johnson of Louisville, Kentucky, Dr. George B. Crozat, of New Orleans, Louisiana, and Dr. Clare K. Madden, of New York, New York.

The technique of the Joseph E. Johnson twin arch was the feature of the teaching in the course.

Sixth Annual Seminar for the Study and Practice of Dental Medicine

The Sixth Annual Seminar for the Study and Practice of Dental Medicine at Palm Springs, California, will follow the American Dental Association Convention to be held in San Francisco October 17-21. The dates set for the Seminar, October 23-28, are conveniently arranged to enable those interested to attend both important gatherings.

Applications are currently being accepted, and, inasmuch as facilities are limited, early arrangements should be made by contacting Miss Marion G. Lewis, Executive Secretary, 1618 Ninth Avenue, San Francisco 22, California.

Denver Summer Seminar

The Twelfth Denver Summer Seminar for the advanced study of orthodontics will be held July 31 to Aug. 5, inclusive, 1949, at the Park Lane Hotel, Denver, Colorado. Dr. Howard Yost, Grand Island, Nebraska, is the new president of the Denver Summer Seminar, and Dr. E. S. Linderholm, Denver, Colorado, the new secretary. The complete program for the seminar will be announced early in 1949.

Detroit Dental Clinic Club

An interesting booklet has come to the observation of the Editor of the AMERICAN JOURNAL OF ORTHODONTICS. It is called "The Detroit Dental Clinic Club, A Record of Clinic Achievement." The author of the booklet is Stephen G. Applegate, D.D.S., and it is dedicated to the pioneer orthodontist of Detroit, Michigan, as follows:

To
Oliver Wilson White,
a professional gentleman of high ideals,
lofty purposes, and sound principles.

The following is gleaned from the pages:

Dr. White was the founder of the Detroit Dental Clinic Club, always an ardent student of dentistry, imbued with a great love for his chosen profession and, with his goal for dentistry "hitched to a star," thought, dreamed, and talked of these things, especially during the summer and fall of 1914. Fortunately there were at that time in Detroit, or near by, several men of vision, destined to become outstanding figures in American dentistry. To them Dr. White proposed his ideas and on November 25 of that year saw the first step taken to make of his dreams a reality.

Meeting on that date at dinner in the old Cadillac Hotel at Detroit for informal discussion of the ideas were, in addition to Dr. White, Dr. E. B. Spalding, Dr. A. L. LeGro, Dr. W. A. Giffen, Dr. R. W. Bunting, Dr. M. L. Ward, Dr. H. C. Raymond, and Dr. C. H. Oakman, each destined to master in the art of dentistry and each destined later to receive many of the honors of the profession. To each was given the task of organizing and directing a "section" devoted to a single phase of the dental art.

The sections and their respective directors were:

Crown and bridge	M. L. Ward
Porcelain crowns	A. L. LeGro
Indirect inlay	E. B. Spalding
	H. C. Raymond
Prosthodontia	W. A. Giffen
	E. L. Whitman
Surgery	C. H. Oakman
Prophylaxis and	R. W. Bunting
Pyorrhea	

The dental profession had for many years seen the birth, growth, and death of various "study clubs" or groups. These were founded for the purpose of cooperative detailed study of some single phase of the art, but all with the predominant thought of mutual individual improvement for those in the groups. Laudable as may have been this concept and as much of value as did accrue, the newly formed Detroit Dental Clinic Club, by its very name, proposed a new idea. A study of dentistry was to be an integral part of its activities, but the greater idea was the dissemination of the acquired knowledge to the profession. No longer was it satisfied with the principle of improvement and mutual benefit of the group alone.

Florida Orthodontic Study Group

Of interest to the readers of the AMERICAN JOURNAL OF ORTHODONTICS no doubt will be the organization recently of the Florida Orthodontic Study Group.

This group was organized in St. Petersburg Nov. 11, 1947. Requisite for membership is the exclusive practice of orthodontics in the state of Florida. The threefold aim of the group is to promote a friendly and cordial relationship among the orthodontists in Florida, to interest the general practitioner in orthodontic problems, and to bring to the state outstanding clinicians to instruct the group.



FLORIDA ORTHODONTIC STUDY GROUP

The first clinical program was held in Tampa, February 9, 10, and 11, 1949, with Dr. Joseph E. Johnson of Louisville, Kentucky, as guest clinician.

Out-of-state guests were Dr. John V. Mershon of Philadelphia, Pennsylvania, Dr. Lloyd Lourie of Chicago, Illinois, Dr. Amos Bumgardner of Charlotte, North Carolina, Dr. Clyde Wells, Spartanburg, South Carolina, Dr. De Castro, Columbia, Central America, and Dr. Frank P. Bowyer, Knoxville, Tennessee.

Charter Members of the Florida Orthodontic Study Group are:

Dr. Leland T. Daniel
 Dr. George F. Wilson
 Dr. Daniel Rachelson
 Dr. W. Glenn Phillips
 Dr. Harold K. Terry
 Dr. W. A. Buhner
 Dr. D. P. Quittner
 Dr. R. Stuart Allen
 Dr. R. E. Allen
 Dr. R. B. Clark
 Dr. J. A. Bell
 Dr. John R. Earman

Dr. H. W. Cook
 Dr. W. P. Wood, Jr.
 Dr. E. C. Lunsford
 Dr. Chas. E. Harrison
 Dr. Clare F. McCreary
 Dr. George J. Coleman
 Dr. Roger Prosser
 Dr. I. W. Bull
 Dr. Guy Toph
 Dr. Roy Bovard
 Dr. Henry Renedo

Officers of the group are:

Dr. R. T. Boyard, Chairman
 Dr. C. E. Harrison, Secretary
 Dr. W. A. Buhner, Treasurer

News Release on 1949 Survey of the Dental Profession

During April of this year the National Income Division of the United States Department of Commerce will mail questionnaires to more than 25,000 dentists in every state in the union, asking for their voluntary cooperation in a survey designed to provide basic information about the practice of dentistry, the gross incomes of dentists, office costs and expenses, net incomes and salaries, etc.

These questionnaires will go to one out of every three dentists in the United States who have been selected in a random fashion within each State in such a manner as to yield a representative cross section of the profession throughout the country. Since the Department is interested only in obtaining over-all summary figures such as totals, averages, and per cents, the forms are completely anonymous, requiring no signature and not being identified in any way.

The Department points out that the returns which dentists have already made for income tax purposes are confidential documents which are not available to the Department of Commerce even for the purposes of the current survey. The Department gives its assurance that the dental questionnaire will also be held confidential, and that the present dental survey is not related in any way to the collection of income taxes. Individual questionnaires will not be made available to any other agency.

This survey of the dental profession, covering the years 1943 to 1948, is being conducted with the wholehearted cooperation of the American Dental Association, having received the full endorsement and approval of the Board of Trustees of the American Dental Association. A similar survey, conducted in 1942 under the joint auspices of the American Dental Association and the Department of Commerce, yielded a mine of valuable information, most of which was made available to members of the profession in detailed articles published in the November, 1943, issue of the *Journal of the American Dental Association* and in the April, 1944, issue of the *Survey of Current Business*, the latter being a publication of the Department of Commerce. The latter article is being sent to all dentists who will receive the current questionnaire. (Dentists who do not receive a questionnaire may obtain a copy of this article without charge by writing to the Office of Business Economics of the Department of Commerce.)

Although the primary purpose of the survey is in connection with the Department's well-known estimates of national, state, and per capita income, these surveys have in the past provided valuable yardsticks by which individual dentists could evaluate their own economic situations, and thus obtain a factual, realistic picture of their future earning possibilities. For example, the American Dental Association has found that in numerous instances dentists have made changes in location, organization, or type of practice upon the basis of information provided by past surveys.

Since the last nationwide survey in 1942, striking changes have occurred both in the national economy as a whole and in the status of the dental profession itself, making it essential to bring the findings of past surveys up to date.

It is expected that the current study will provide new data on the current average gross incomes, costs of practice, and net incomes of independent and salaried dentists, as well as of part-salaried and all-salaried dentists. It will also show the trend since 1943 in the average incomes of dentists, and will permit interesting comparisons with recent trends among physicians and lawyers. Among other things, the survey will provide a basis for comparison between the earnings of dentists in general practice and those who are specialists. Data will also be made available giving the average incomes of dentists at different ages and in different sizes of community. It is also expected that comparisons of average incomes can be made as between dentists who served in the armed forces in World War II and those who did not. In addition, important regional comparisons of average gross and net incomes can be made.

The current survey will also provide information on the amount of money being spent currently by individual consumers for dental services, the proportion of dentists who practice solo, the proportion who are salaried, the proportion of dentists who have no

employees, one employee, etc., the amount of salaries and wages paid to full-time and part-time employees and the average annual office rents paid by dentists.

If a sufficient number of returns are received, it will also be possible to present data comparing average incomes for most of the individual states and for the largest cities (e.g., New York City, Chicago, Philadelphia, Los Angeles, Detroit, Cleveland, Baltimore, St. Louis, Boston, etc.). Since income information for specific cities is a subject which is always of great interest to all professional people, and since such data are now available for physicians and lawyers but not for dentists, the Department is particularly anxious to get replies from all dentists who receive questionnaires. If the number of returns from a given city is too small to yield reliable results, no figures can be published for that city.

In order to get a comprehensive and reliable over-all view of the profession, it is very important that all types of dentists reply to the questionnaire. It is a common reaction of prospective respondents not to answer the Department questionnaires because they feel that their situation is not typical. This is a mistake. If the results obtained are to be a faithful reflection of the status of the profession, it is essential that the replies represent all dentists: those at every income level (i.e., those with low incomes and those with high incomes, as well as those with "average" or typical incomes); those in practice by themselves; those in group practice; those on a salaried basis, no matter whether employed by other dentists, by business, or by local, state, or federal governmental agencies; those with past armed forces service as well as those without such service; those just entering practice as well as those who are firmly established; those who practice only part time as well as those who practice full time; those who are partly or even wholly retired; those who are no longer in dental practice but are currently engaged in administration, teaching, or business; and those who are not American Dental Association members as well as those who are. It is only by including all such persons that we can get a full-length portrait of the dental profession.

In the last analysis, it is only by securing the wholehearted cooperation of the individual dentists (and former dentists) that the valuable potentialities of this study can be fully realized.

Army Announces Changes in Medical and Dental ROTC Summer Camp Program

Certain changes in the medical and Dental Reserve Officers Training Corps Summer Camp Program have been approved by the Department of the Army General Staff, it was announced this week by Major General R. W. Bliss, the Army Surgeon General. The changes affect only those students who are veterans of one year or more of active military service.

The new changes include: (1) the use of Army General Hospitals instead of the Medical Field Service School for the summer training of qualified individuals; (2) the revision of the summer military training program for such individuals so as to place primary emphasis on military medicine, dentistry, and surgery; (3) a corresponding reduction in the number of hours devoted to essentially military subjects in that program.

The revisions will not affect those students who are not thus qualified by one year or more of active military service. As in previous years, they will attend the normal Medical and Dental ROTC Summer Camp conducted at the Medical Field Service School, Brooke Army Medical Center, Fort Sam Houston, Texas.

The primary reason for the changes was recognition of the fact that veterans of one year or more of active military service are already qualified in most basic military subjects, and their reaction to refresher training in military subjects was not always conducive to the best interests of the program. Under the new changes this condition will be eliminated and these veterans will be free to utilize this training period in a manner more advantageous both to themselves and the Service.

Qualified medical and dental students will be sent to selected Army general hospitals for a six-week period during the summer instead of to the Medical Field Service School.

During this period they will receive orientation in military matters, but the major share of their time will be spent on the wards or dental clinics of the hospitals. They will also attend as many of the regularly scheduled formal teaching exercises as can be integrated into their program. A greater portion of the teaching will be accomplished by the residents, interns, and the attending staff assigned to the hospital. With few exceptions the hospitals in which they will undergo this training are at present participating in the programs of near-by medical schools. In addition, a majority of the attending staff physicians and dentists are intimately connected with civilian professional schools.

Training periods at the selected general hospitals will be six weeks in length. Two classes will be conducted at each: one beginning June 12, 1949, and one beginning Aug. 1, 1949. In so far as possible, all qualified students at one institution will be sent to the same class at the same installation.

Veterinary and pharmacy ROTC students will attend the normal course at the Medical Field Service School, since no change is contemplated for them.

American Dental Association

The *Journal of the American Dental Association* declared that President Truman's espousal of federal compulsory health insurance "represents a dangerous willingness to experiment with the health of the people for the sake of political advantage."

In a special 96-page supplement devoted entirely to a discussion of the issues involved in compulsory health insurance, publication flatly charged that adoption of the Truman program would not be in the public interest.

"It (compulsory health insurance) is not a product of those who have had life-long experience in the actual provision of dental and medical care," the Journal said editorially. "It is a program designed by laymen with a sharp eye on the political profit inherent in promising something for nothing."

"The traditional common sense of the average American makes all panaceas suspect. Compulsory health insurance at the federal level should be recognized for what it is, a panacea that can mask the dangerous symptoms of real health needs until the present effective American mechanism for maintaining health will not be able to respond to the increasing calls for public service which every profession finds always before it."

As a practical approach toward a solution of the nation's dental health problems, the Journal cited the program of the American Dental Association calling for increased research, expanded dental health education, and the extension of community health programs to make dental care available for all children.

Dr. Clyde E. Minges, of Rocky Mount, North Carolina, A.D.A. president and one of the contributors to the special supplement, declared:

"This program (of the American Dental Association) obviously will not be as dramatic and attractive as a program which promises something for nothing. But it is a program which can be carried out now without unending expenditures, without burdensome taxes, without creating a huge, new administrative structure, without sacrificing future dental health for present political advantage."

Included in the supplement were articles by a number of outstanding dental authorities who pointed out that compulsory health insurance would jeopardize the nation's dental health, now the highest of any country in the world.

Dr. Allen O. Gruebbel, Secretary of the Council on Dental Health, pointed out that the dental profession's objection to the Truman program is based on scientific rather than political grounds.

"In spite of all that has been written and said about the need for a more effective health plan, the improvement of health service and its extension to more persons are not the chief cause of conflict between the opposing groups," Dr. Gruebbel said. "The health professions always have led in furthering these aims."

"The basic issues are: (1) the interference of a third party in the health affairs between a citizen and his physician or dentist and (2) the universal socialization of the health services. There is no more justification for requiring physicians, dentists and nurses to serve under a national socialized system than there is for requiring attorneys, bankers or business executives to do so."

President's Message*

A Résumé of the National Health Act in Great Britain

IS THE UNITED STATES GOING TO ENACT SIMILAR LEGISLATION?

FREDERICK R. ALDRICH, D.M.D., PRESIDENT, COLUMBUS DENTAL SOCIETY

The first health insurance law was passed in Great Britain in 1911. A complete account of this bill is given in the *Britannica Year Book* of 1913. The professional reaction at that time was completely against the legislation.

A tremendous change has been wrought in the attitude of the men of Great Britain since the original passing of this particular social service act. History has shown that such legislation does not decrease in coverage. There is always a marked tendency to increase its coverage. The Beveridge Publication is an example of this fact, which was published in 1942, and was accepted by the government then in power. This bill was briefly a coverage from the cradle to the grave, including health services, unemployment, disability, widowhood, and funeral services. A tremendous change has been wrought in the attitude of the medical and dental professions in Great Britain since the original passing of this social service act.

In later years many practitioners, both medical and dental, have been in the exclusive practice of socialized, or state medicine and dentistry. It is important for all of us to remember that Great Britain was very hard hit during World War II. Its citizens were subjected to all sorts of deprivation with rationing of even the bare necessities of life. All political parties, including the professions, felt that some form of social legislation should become a law, which would give all peoples the opportunity of availing themselves of the advantage of modern health coverage.

DENTISTS NOT UNITED

The dental profession of Great Britain unfortunately is represented by three separate dental organizations. Approximately 58 per cent belong to the British Dental Association, 28 per cent to the Incorporated Dental Society, and 14 per cent to the Public Dental Service Association. The 28 per cent group were a group of men who in 1921 were licensed to practice, but never had the advantage of college training. The 14 per cent group represented the men who joined the so-called "panel service system," of those employed in public service in order to get patients under the health service act. The 58 per cent were the dental graduates who felt they represented the higher plane of the profession. Thus it was in 1948 that the medical and dental professions found themselves in a sorry position due to lack of unity in their own ranks. This was more particularly true concerning the dental profession. One can readily see, however, that it was a comparatively easy matter for the politicians to use one group against another, and thus the profession, itself, had no uniform plan as to how the health act should be administered.

The National Health Act in Great Britain became effective on July 5, 1948, giving everyone complete medical and dental coverage. The 14 per cent group, as has been stated, had been practicing state medicine throughout the years with complete disregard for dental health as their work consisted chiefly in extracting teeth and making dentures. They were able to make a comfortable living without giving much thought to the basic health factors involved in so-called "preventive dentistry," and the many other factors

*Reprinted from *The Bulletin*, Columbus Dental Society, March, 1949.

that we American dentists feel are vital to the health of our fellow men. Had unity existed, the present state that the dentists of Britain find themselves in might have been much better. It may be stated that there are two basic controversial thoughts, namely, clinical freedom and the basis of payment. The politicians state that there are dentists on all committees, thus assuring them of their clinical freedom. The complete national dental health act, however, is under the control of one man, the Minister of Health.

CIVIL SERVICE STATUS

Under the British plan the medical men are paid on a per capita basis. The dentists refused to accept this plan. They wanted a grant in aid which simply means the government will pay a certain amount and the dentist will charge the difference to the patient having the work done. This system is operating in various countries at the present time. The government refused this because it claimed it had not been successful in other countries. It finally ended that those who continued in private practice would all have the same fee schedule, the individual practitioner having nothing to say in the matter. Those who practice in a health center are on a salary basis. The government makes no bones of the fact that eventually all dentists will have to practice in health centers on salaries, or, if you please, a civil service status. Speed of operation, quality of the individual work, is not taken into consideration so far as the fee is concerned.

At the present time there are approximately 10,000 dentists in Great Britain, not enough to take care of the tremendous load which has been placed on them by the citizens who want something for nothing, which is the fundamental cause of the enormous economic upheaval the world finds itself in today. The British Dental Association advised its members not to sign or become a part of a group that would obviously ruin the individual's rights. The unity of the Medical Society served them well, as they all refused to sign until they were assured they would not become civil servants. Their whole action was completely negative. This information, of course, was in the hands of the politicians, and because of the lack of unity in the dental profession, at the end of one month of operation, over 30 per cent of the dentists had signed up. At this point the Minister of Health appointed what was known as the Spens Committee to study the average income of the dentists throughout Great Britain. It was discovered that the gross income was below \$5,000 and, deducting taxes and high living costs, the average dentist did not have enough income to live on the same basis as the lower middle class.

The politicians wisely established a fee high enough to be attractive to the short-sighted individual who did not take into consideration the fact that when a person signed up he gave up his practice, which would become increasingly hard to re-establish, and also gave up his individual life as a professional man, and might be fired, or transferred to another community if he did not meet all of the required regulations or displeased his supervisor.

COMPLICATED PROCEDURE

At this point, let us consider the fact that every individual in Great Britain, man, woman, and child, is entitled to free dental service. Just how must they go about getting this service? First, it is necessary for the individual to go to the post office and get a form. There the names of all dentists are posted. From this list he must select a dentist. He then proceeds to the dental office, presents his registration card, and asks the dentist if he would care to accept the case. This same procedure is necessary for each member of the family. The dentist has the privilege of refusing to accept the case. However, if he does accept it, the patient signs a form stating he desires this particular dentist to do his work, and the dentist also signs a form stating that he will accept the case, and usually at this first visit an appointment is given the patient. The next visit, the dentist has to fill out two charts, one for himself, and one for the Regional Office, stating all the conditions he finds in the mouth, such as cavities, needed extractions, missing teeth, and all details of his plan of treatment, including the fee, which has been copied from a chart

sent him by the Regional Office. One chart he keeps on file in his office. The second chart is sent to the regional health center, or dental estimate board for their consideration.

A number of things may happen at this estimate board which is under the complete control of the Minister of Health. At the estimate board there are several laymen and a dental officer. If there is any question as to approval, the board can ask the dentist to bring the patient to the regional office where the dental officer will make a further examination, or, if the examining officer wishes, he may call the dentist and go to the dentist's office and make the examination of the patient, where he either approves or offers other suggestions as to the type of treatment that he feels the patient should have. After approval is granted, the estimate board returns the form to the dentist and he is then allowed to proceed with the approved treatment.

After the work is completed, the patient must sign a form stating he is pleased with the work and the dentist can then render his bill to the estimate board for payment. The executive council, however, of the local estimate board still has to approve the bill, and if O.K.'d, will then send the dentist a check for services rendered, less 6 per cent for what they call superannuation, or what we would call retirement fund. This accumulates and draws interest at $2\frac{1}{2}$ per cent toward retirement, which is age 65. As soon as the patient has been discharged or completed, he severs his relationship with the dentist and has to go through the same rigmarole the next time he needs dental services.

DENTISTRY MADE UNATTRACTIVE

Men who have recently graduated from dental school are faced with the problem as to whether they should apply for an appointment at the health center where all equipment is furnished, or open their own individual offices. Men starting in the profession are told where they cannot practice. They are also faced with the fact that everyone in Britain knows the government will eventually put all dentists on the payroll as civil servants of the government. There is also a tremendous health center shortage. Building materials are not available. It will, therefore, be a number of years before all dentists could work in a health center if they so desired. The government, however, feels that it has been very considerate in offering a special opportunity for those who work in health centers. They start on a salary of approximately \$6,000 per year. At the end of twenty-eight years, the regional executive committee can recommend a dentist to the Minister of Health for the magnificent increase in salary which will allow them approximately \$8,000 per year.

It, therefore, is understandable that young men are not rushing into dental schools in Great Britain. At any time, if the dentist is investigated and found guilty of not complying to the health regulations of the Health Act, his name may be withdrawn from the lists. This certainly does not give the dentist a feeling of security. All dentists who are working under this act are subjected to inspection by the Regional Dental Officer. This inspection embraces all the various phases necessary to operate a dental office, technique, record books, equipment, or anything else that the regional inspector may desire to examine. Possibly the individual dentist's appearance may not meet the inspector's approval. At any time that the Regional Officer has a complaint from a patient, after the dental officer has examined the case, he may ask the dentist to do his work completely over without any remuneration. Should he be sued, he does not have access to a regular court of law, but must make his appeal through the Regional Tribunal, which consists of a Chief Dental Officer, two fellow practitioners, and a barrister, all of whom have been appointed by the Minister of Health. The law states that if he loses he may reapply to the Minister of Health. In the meantime, however, the chances are his name has been withdrawn from the list. What then happens to the poor dentist?

CONTRARY TO AMERICAN IDEAL

Let us remember the world is in a social revolution. Originally the medical men and the dentists of Great Britain did not want any form of socialized medicine. Like those of us in America, they chose their professions first because they felt they could do a

service for their fellow men. They also expected to receive security for themselves and their families. Regimentation is not the free enterprise way of life.

To protect our interests as well as the interests of the public, it becomes necessary for every individual practitioner to do all in his power to see that the public is educated to the importance of perpetuating the health standards that have been constantly advancing in the United States. This has not come about through socialism, but rather under our democratic form of government, which is dedicated to the fact that all men are created equal. We have available in this country the public press, radios, and the public school system. All of these agencies are anxious to help raise the standards of living. Therefore, let's make it our business to see that these agencies are given the true picture pertaining to their health needs. Health services should be available to all. This, however, does not mean that suddenly all types of dental and medical services should be given free to all of our citizens.

The great majority of people in America treasure their individual independence, and wish to choose and pay for what they get. There are, however, many indigents who need public funds to assist them in living. This does not necessarily mean health services alone. They are not able to buy their food and clothing, and they need general assistance. These poor unfortunates should unquestionably be cared for as much as possible through the local communities in which they live. Too many people in the world have the feeling that if their governments pay the bill, it does not cost anything, or the other person has to pay, and they, at any rate, get it for nothing.

England has found that the Health Bill is so overwhelmingly large that there will have to be a tremendous increase in taxation. We, in this country, are aware of the cost of government. Since World War II every individual either in a profession or any other employment, or with a private income, has to foot the bill. Can you imagine one of your next door neighbors having to go to the post office, look over a list of dentists' names, be assigned a service form, before he is allowed to go to a dental office for his needed work? Does this sound as though it would raise the health standard of the nation? How long would individual practitioners of this country keep their enthusiasm and do the fine work that is being done in the offices throughout America, if a situation of this sort were to prevail?

The public should know that if we have socialized medicine and dentistry in this country, they will be subjected to the whims of politicians and laymen. Individual attention will be lacking in this particular type of service. It is human nature, or, at any rate, the free enterprise way of life, for us to feel that our physician or dentist is interested in us personally. Wouldn't you be a little apprehensive if you felt that you were to be cared for by government employees rather than the individual practitioners who know your problems, needs, and desires? It is high time that every one of us makes it our business to see that the public is really educated to its own health needs.

Colonel Louis H. Renfrow Receives New Appointment

Colonel Louis H. Renfrow, of Washington, D. C., Assistant Military Aide to President Truman and a staff member of the Selective Service headquarters, has been appointed an Assistant Secretary of Defense under Louis A. Johnson, successor to former Secretary of Defense James Forrestal.

Colonel Renfrow is one of two men selected for appointment as assistant secretaries by Mr. Johnson. The other is Paul H. Griffith, a past national commander of the American Legion. Colonel Renfrow, a former practicing dentist in St. Louis, Missouri, is a veteran member of the American Dental Association and at present is chairman of the Association's committee on war memorial.

Notes of Interest

Dr. John H. Byrne announces the resignation of Dr. Robert C. Byrne from military service and the resuming of their association in orthodontics at 2602 South Grand, St. Louis, Missouri.

Dr. Roy B. Dean announces the change of his office from Avenida Juarez 56 to Paseo de la Reforma 510, Mexico City, Mexico.

Dr. William A. Giblin, D.D.S., and Howard S. McElnea, D.D.S., announce their association in the practice of orthodontics at 85 Park Street, Montclair, New Jersey.

Faustin N. Weber, D.D.S., M.S., announces the association of Ralph E. Braden, D.D.S., in the practice of orthodontics at 809-811 Medical Arts Building, Memphis, Tennessee.

OFFICERS OF ORTHODONTIC SOCIETIES

The AMERICAN JOURNAL OF ORTHODONTICS is the official publication of the American Association of Orthodontists and the following component societies. The editorial board of the AMERICAN JOURNAL OF ORTHODONTICS is composed of a representative of each one of the component societies of the American Association of Orthodontists.

American Association of Orthodontists

President, Lowrie J. Porter - - - - - 41 E. 57th Street, New York, N. Y.
President-Elect, Max E. Ernst - - - - - 1250 Lowry Medical Arts Bldg., St. Paul, Minn.
Vice-President, William R. Humphrey - - - - - 1232 Republic Bldg., Denver, Colo.
Secretary-Treasurer, George R. Moore - - - - - 919 Oakland Ave., Ann Arbor, Mich

Central Section of the American Association of Orthodontists

President, Joseph H. Williams - - - - - 3720 Washington Blvd., St. Louis, Mo.
Secretary-Treasurer, Earl E. Shepard - - - - - 4500 Olive St., St. Louis, Mo.

Great Lakes Society of Orthodontists

President, Wilson R. Flint - - - - - Jenkins Arcade, Pittsburgh, Pa.
Secretary-Treasurer, Scott T. Holmes, 509 Hackley Union National Bank Bldg., Muskegon, Mich.

Northeastern Society of Orthodontists

President, Norman L. Hillyer - - - - - Professional Bldg., Hempstead, N. Y.
Secretary-Treasurer, Oscar Jacobson - - - - - 35 W. 81st St., New York, N. Y.

Pacific Coast Society of Orthodontists

President, C. F. S. Dillon - - - - - Taft Bldg., Hollywood, Calif.
Secretary-Treasurer, Frederick T. West - - - - - 870 Market St., San Francisco, Calif.

Rocky Mountain Society of Orthodontists

President, Harry V. Banks - - - - - 1550 Lincoln St., Denver, Colo.
Vice-President, Elmer S. Linderholm - - - - - 1558 Humboldt St., Denver, Colo.
Secretary-Treasurer, Ernest T. Klein - - - - - 632 Republic Bldg., Denver, Colo.

Southern Society of Orthodontists

President, Samuel D. Gore - - - - - Maison Blanche Bldg., New Orleans, La.
Secretary-Treasurer, Frank P. Bowyer - - - - - Medical Arts Bldg., Knoxville, Tenn.

Southwestern Society of Orthodontists

President, J. S. Cunningham - - - - - 3718 Travis St, Houston, Texas
Secretary-Treasurer, Marion A. Flesher - - - - - Medical Arts Bldg., Oklahoma City, Okla.

American Board of Orthodontics

President, Bernard G. deVries - - - - - Medical Arts Bldg., Minneapolis, Minn.
Vice-President, Joseph D. Eby - - - - - 121 E. 60th St., New York, N. Y.
Secretary, Stephen C. Hopkins - - - - - 1726 Eye St., N. W., Washington, D. C.
Treasurer, James A. Burrill - - - - - 25 E. Washington St., Chicago, Ill.
James D. McCoy - - - - - 405 North Bedford Drive, Beverly Hills, Calif.
Reuben E. Olson - - - - - 712 Bitting Bldg., Wichita, Kan.
Raymond L. Webster - - - - - 133 Waterman St., Providence, R. I.

There is an apparent discrepancy

The pages are either missing or

The filming is recorded as the

ancy at this point.

or the pagination is incorrect.

e book is found in the collections.

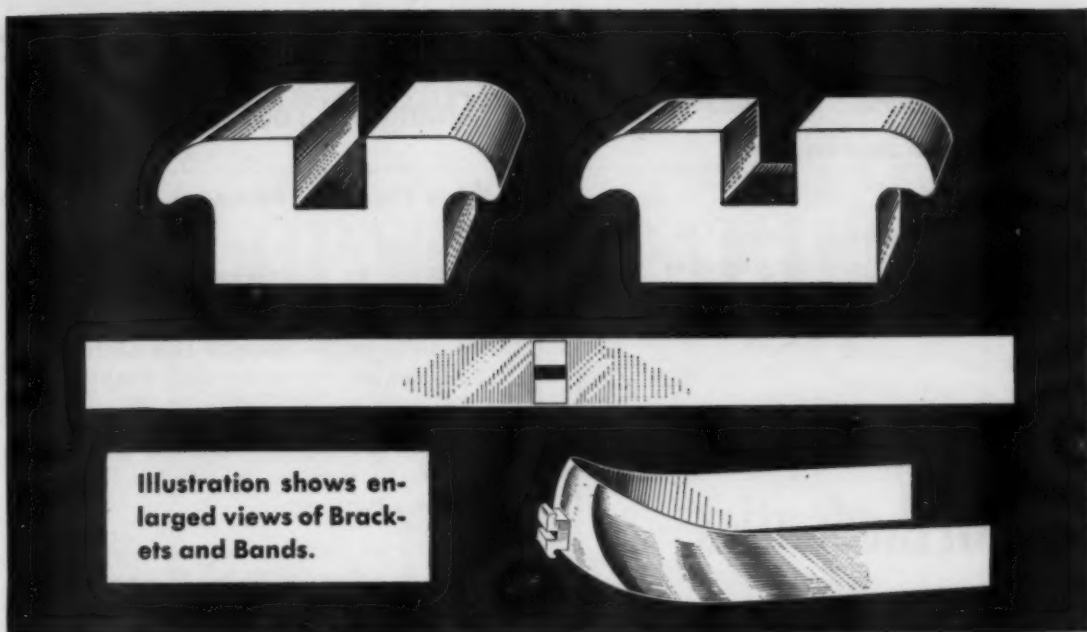


Illustration shows enlarged views of Brackets and Bands.

Aderer's EDGEWISE BRACKETS ... AND BRACKET BANDS

Aderer Edgewise Brackets are accurately machined to the close tolerance of fine precision instruments. The platinum-color precious metal used is hard, serviceable and high-fusing—alloyed to provide the precise physical properties required to meet the service to which the appliance is subjected. Aderer Edgewise Brackets are available in two widths .05" and .10".

They are also available redi-mounted to bracket bands made of the famous Aderer Temperable Band Material. The Doctor may choose the flat .004" x .125" x 1 $\frac{3}{4}$ " or .004 x .150 x 2" bands or Dr. Downs' Contoured Bands. The latter are supplied in sizes for molar, cuspid and anterior.

115 West 45th St.
New York City

ADERER GOLDS

Julius Aderer, Inc., New York • Chicago

55 E. Washington St.
Chicago

Publishers Authorized Bindings

12 issues per volume,
January to December, inclusive

\$2.75

American Journal of Orthodontics

**Beautifully Bound in Best Grade
Washable Buckram**

Your Name on the Front Cover

Special arrangements have been made by THE C. V. MOSBY COMPANY whereby subscribers can have their copies economically bound to the publisher's specifications.

You can now have your issues of *American Journal of Orthodontics* bound in best grade of washable buckram with your name imprinted in genuine gold on the front cover.

These personalized and handsomely crafted books, distinctively designed, will prove an asset to your home or office library. They will be a constant source of reference for many years to come.

Your bound volumes will be returned—transportation PREPAID to any place in the United States. Ship journals express or parcel post PREPAID, with check or money order made payable to:

The Book Shop Bindery

**Creators of Distinctive Bindings
Since 1895**

**308 WEST RANDOLPH STREET
CHICAGO 6, ILL.**

Changing Your Address?

When You Move, Please—

- (1) Notify us to change your address—allow us six weeks to make the change.
- (2) Mention the name of this Journal. (We publish eleven periodicals.)
- (3) Give us your old address. If possible, return the addressed portion of the envelope in which we sent your last copy.
- (4) Give us your new address—complete—including the Postal zone number.
- (5) Please print your name and address.

Thank You!

Circulation Department, The C. V. Mosby Company, Publishers, 3207 Washington Blvd., St. Louis 3, Mo.

Back Copies WANTED!

The publishers require copies of the following back issues of The American Journal of Orthodontics for libraries and subscribers to complete broken files:

1923: February

1925: December

1947: February, March, December

We will pay \$.60 for each copy

Address copies to: A. W. Vol-
land, Circulation Manager, The C.
V. Mosby Company, 3207 Wash-
ington Blvd., St. Louis 3, Missouri.



Announcing Publication of...

DENTAL CARIES

**Mechanism and
Present Control Technics**

Edited by

KENNETH A. EASLICK, A.M., D.D.S.
Ann Arbor, Michigan

Professor of Dentistry (Dentistry for Children) in the
School of Dentistry and Professor of
Public Health Dentistry in the
School of Public Health

234 Pages

Price, \$5.00

This Book is a record of the proceedings of the University of Michigan School of Public Health and School of Dentistry Inservice Training Course for the Evaluation of Dental Caries Control Technics, during the week of September 8-13, 1947.

LECTURERS

WALLACE D. ARMSTRONG, Ph.D., Professor of Physiological Chemistry, School of Medicine, University of Minnesota.

FRANCIS A. ARNOLD, Jr., B.S., D.D.S., Dental Research Section, National Institute of Health, Washington, D. C.

HERMAN BECKS, M.D., D.D.S., Professor of Dental Medicine, School of Dentistry, University of California.

BASIL G. BIBBY, D.M.D., Ph.D., Director of Eastman Dental Dispensary (Formerly Dean, Tufts College Dental School, Boston).

SAMUEL W. CHASE, Ph.D., Professor of Histology and Embryology, School of Dentistry, Western Reserve University.

KENNETH A. EASLICK, A.M., D.D.S. (The Editor).

LEONARD S. FOSDICK, Ph.D., Professor of Chemistry, School of Dentistry, Northwestern University, Chicago.

THOMAS J. HILL, D.D.S., Professor of Pathology, School of Dentistry, Western Reserve University.

MAYNARD K. HINE, D.D.S., M.S., Dean, School of Dentistry, University of Indiana.

PHILIP JAY, D.D.S., Sc.D., Associate Professor of Dentistry, School of Dentistry, University of Michigan.

ROBERT G. KESEL, D.D.S., M.S., Professor of Applied Materia Medica and Therapeutics, College of Dentistry, University of Illinois.

JOHN W. KNUTSON, D.D.S., Dr. P.H., Chief, Dental Section, States Relations Division, U. S. Public Health Service.

HAMILTON B. G. ROBINSON, D.D.S., M.S., Professor of Oral Pathology and Diagnosis, College of Dentistry, Ohio State University.

GENEVIEVE STEARNS, Ph.D., Professor of Biochemistry, Department of Pediatrics, University of Iowa Hospitals.

ROBERT M. STEPHAN, D.D.S., M.S., Dental Research Section, National Institute of Health, Washington, D. C.

HENRY F. VAUGHAN, Dr. P.H., Dean, School of Public Health, University of Michigan.

DONALD A. WALLACE, Ph.D., Secretary, Council on Dental Therapeutics, American Dental Association, Chicago.

NED B. WILLIAMS, D.D.S., Ph.D., Assistant Professor of Bacteriology, Thomas W. Evans Museum and Dental Institute, School of Dentistry, University of Pennsylvania.

HELMUT A. ZANDER, D.D.S., M.S., Associate Professor of Clinical Dentistry, Tufts College Dental School.

THE C. V. MOSBY CO., 3207 Washington Blvd., St. Louis 3, Mo.

Please send me a copy of Easlick's **DENTAL CARIES**
(With Contributors)—The price is \$5.00

☐ Enclosed find check.

☐ Charge my account.

Name -----

Address -----

MJ

Coming Soon



REVIEW OF DENTISTRY

(Questions and Answers)

APPROX. 700 PAGES

PRICE, AROUND \$6.00

Edited by **JAMES T. GINN, B.S., D.D.S.**

University of Tennessee, School of Dentistry

Many people regard Mosby Dental Books as the finest in the field. They know we never relax our efforts to bring you the latest scientific dental literature. When compiling the material for *REVIEW OF DENTISTRY* only outstanding authorities were asked to serve as consultants in this project. Their names and the subjects in which they are acknowledged authorities are listed below.

These are the leaders you can depend upon when preparing for state board examinations. If you are practicing dentistry, you may want to use the book as a "refresher."

CONSULTANTS

ANATOMY:

Dental—

Robert Zeisz, D.D.S., and James Nuckolls, M.S., D.D.S., University of California, School of Dentistry

General—

Harry Sicher, M.D., Loyola University, School of Dentistry, Chicago

BACTERIOLOGY:

Marguerite Taylor Dean, B.S., M.D., Ph.D., University of Tennessee, School of Dentistry

CHEMISTRY:

Richard S. Manly, Ph.D., Tufts Dental College, Boston

CROWN AND BRIDGE:

David H. Coelho, A.B., D.D.S., New York University, New York City

DENTAL MATERIALS:

N. O. Taylor, M.S., Research Dept., S. S. White Company; formerly, Professor of Dental Materials, University of Michigan, School of Dentistry

DIAGNOSIS AND TREATMENT PLANNING:

H. B. McCarthy, B.S., M.A., D.D.S., Baltimore College of Dental Surgery

ENDODONTICS:

Ralph F. Sommer, D.D.S., M.S., University of Michigan, School of Dentistry

HISTOLOGY:

General—Dental—Embryology—

J. P. Weinmann, M.D., University of Illinois, School of Dentistry

JURISPRUDENCE:

Joseph M. Bowab, A.B., LL.B., Attorney-at-Law, Former Lecturer in Dental Jurisprudence, Loyola University School of Dentistry, New Orleans

NUTRITION:

Marguerite Taylor Dean, B.S., M.D., Ph.D., University of Tennessee, School of Dentistry

ORAL HYGIENE:

V. O. Hurme, D.D.S., Forsythe Dental Infirmary, Boston

ORAL MEDICINE:

Hermann Becks, M.D., D.D.S., University of California

ORTHODONTICS:

George M. Anderson, D.D.S., Baltimore College of Dental Surgery

OPERATIVE DENTISTRY:

Carl Oman, D.D.S., Columbia University, School of Dentistry and Oral Surgery

PATHOLOGY:

General—

W. H. Bauer, M.D., B.S. (Med.), D.D.S., St. Louis University School of Medicine and Dentistry

Oral—

Kurt H. Thoma, D.M.D., Harvard University, Boston

PEODONTICS:

Ruth Martin, D.D.S., Washington University School of Dentistry, St. Louis

PERIODONTOLOGY:

Balint Orban, M.D., D.D.S., University of Illinois, School of Dentistry

PHARMACOLOGY, MATERIA MEDICA and

THERAPEUTICS:

Edward C. Dobbs, D.D.S., F.A.C.D., Baltimore College of Dental Surgery

PHYSIOLOGY:

W. W. Tuttle, B.S., M.A., Ph.D., and W. D. Collings, Ph.D., both of State University of Iowa, College of Medicine

PRACTICE MANAGEMENT AND ETHICS:

Gaylord J. James, D.D.S., Western Reserve School of Dentistry, Cleveland, Ohio

PROSTHETIC DENTISTRY:

Full Dentures—

Merrill G. Swenson, D.D.S., University of Oregon, School of Dentistry

Partial Dentures—

Victor L. Steffel, D.D.S., F.A.C.D., Ohio State University School of Dentistry

ROENTGENOLOGY:

Gordon M. Fitzgerald, D.D.S., University of California School of Dentistry

SURGERY:

Oral—Anesthesia—Exodontia—

Sterling V. Mead, B.S., M.S., D.D.S., Washington, D. C.

General—

Maurice J. Hickey, D.M.D., M.D., Columbia University School of Dental and Oral Surgery

ORDER FORM

THE C. V. MOSBY COMPANY, 3207 Washington Blvd., St. Louis 2, Missouri

MJ

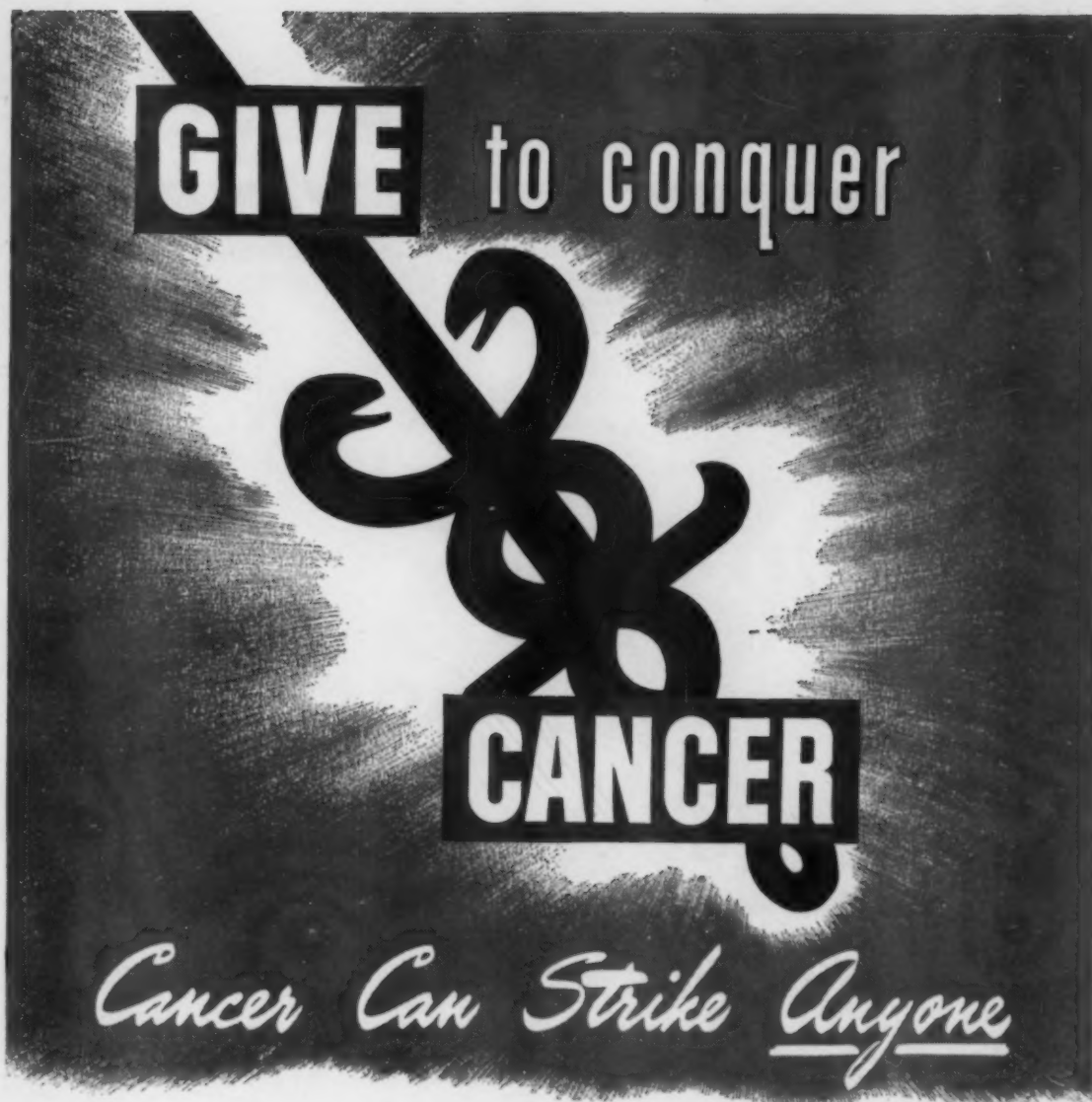
Please send me a copy of *REVIEW OF DENTISTRY* as soon as published. The price is about \$6.00.

----Bill me C.O.D. when shipped

----Charge my account

Name -----

Address -----



JUST MAIL IT TO "CANCER"

Give as generously as you can—today. Your check or money order in an envelope addressed to "Cancer", care of your local post office, will be delivered to the American Cancer Society office in your state.

Here's my \$.....to help conquer cancer

NAME.....

ADDRESS.....

CITY.....ZONE.....STATE.....

Give and keep giving to help science defeat the disease that strikes, on the average, one out of every two homes in America. Say to yourself...here is life-giving money to help those stricken by Cancer to live again.

EVERY NICKLE AND DIME I give helps support an educational program teaching new thousands how to recognize Cancer and what to do about it.

EVERY QUARTER I give helps set up and equip new research laboratories where scientists are dedicating their lives to find the cause—and cure of Cancer.

EVERY DOLLAR I send helps buy new equipment, helps establish new facilities for treating and curing Cancer, both still pitifully scarce in this country... Guard those you love! Give to conquer Cancer!

AMERICAN CANCER SOCIETY

PRECIOUS METALS



WILLIAMS PAYS MORE FOR YOUR SCRAP

It's no sleight-of-hand trick — Williams *Dyna-flo* refining. This process pioneered by Williams research is a combination of new ideas in chemistry and metallurgy. Through laboratory controlled metallic segregation, *not* only gold, but also platinum, palladium and silver are reclaimed. You are paid in accordance with market prices. Due to the efficiency of *Dyna-flo*, the refining cost is exceptionally low. *You* benefit in terms of higher cash returns.

All types of precious metal scrap acceptable—trimmings, chips, grindings, sweeps. All are precision refined and assayed. A trial shipment will prove to you the extra dividends and faster service *Dyna-flo* can render.

WILLIAMS *Gold Refining Co., Inc.*

FORT ERIE N., ONT.

BUFFALO 14, N.Y.

HAVANA, CUBA

THOSE IN THE KNOW BANK ON DYNA-FLO



AMERICAN JOURNAL OF ORTHODONTICS

Published by THE C. V. MOSBY COMPANY, 3207 Washington Blvd.
St. Louis 3, U. S. A.

Entered at the Post Office at St. Louis, Mo., as Second Class Matter.

Published Monthly. Subscriptions may begin at any time.

Official Publication of The American Association of Orthodontists,
its components societies and The American Board of Orthodontics

Editor-in-Chief

H. C. Pollock

Sectional Editors

Charles R. Baker, Evanston, Ill.
Henry Cossitt, Toledo, Ohio
Joseph D. Eby, New York City
Henry F. Hoffman, Denver, Colo.

James D. McCoy, Beverly Hills, Calif.
Oren A. Oliver, Nashville, Tenn.
Paul G. Spencer, Boerne, Texas

Associate Editors

Dentistry for Children
Walter T. McFall, Asheville, N. C.

Abstracts and Reviews
J. A. Salzmann, New York City

EDITORIAL COMMUNICATIONS

Original Communications.—Manuscripts for publication and correspondence relating to them should be sent to Dr. H. C. Pollock, 8015 Maryland Ave., St. Louis 5, Mo., U. S. A.

Manuscripts should be typewritten on one side of the paper only, with double spacing and liberal margins. References should be placed at the end of the article and should include, in the order given, name of author, title, journal, volume, pages, and year; e.g., Smith, E. J.: Children's Dentistry, *Am. J. Orthodontics*, 34: 1-25, 1947. Illustrations accompanying manuscripts should be numbered, provided with suitable legends, and marked on margin or back with author's name. Articles accepted for publication are subject to editorial revision. Neither the editors nor the publishers accept responsibility for the views and statements of authors as published in their "Original Communications."

Illustrations.—A reasonable number of half-tone illustrations will be reproduced free of cost to the author, but special arrangements must be made with the editor for color plates, elaborate tables, or extra illustrations. Copy for zinc cuts (such as pen drawings and charts) should be drawn and lettered only in India ink, or black typewriter ribbon (when the typewriter is used), as ordinary blue ink or colors will not reproduce. Only good photographic prints or drawings should be supplied for half-tone work.

Books for Review.—Only such books as are considered of interest and value to subscribers will be reviewed, and no published acknowledgment of books received will be made. These should be sent to Dr. J. A. Salzmann, 654 Madison Ave., New York City.

Reprints.—Reprints of articles published among "Original Communications" must be ordered specifically, in separate communication to the publishers, The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, Mo., U. S. A., who will send their schedule of prices. Individual reprints of an article must be obtained through the author.

BUSINESS COMMUNICATIONS

Business Communications.—All communications in regard to advertising, subscriptions, change of address, etc., should be addressed to the publishers, The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, Mo.

Subscription Rates.—Single copies, \$1.00. In the United States and other countries of the U. S. Postal Zone \$10.00 per year in advance. In Canada and other foreign countries \$11.00.

Remittances.—Remittances for subscriptions should be made by check, draft, post-office or express money order, payable to the publishers, The C. V. Mosby Company.

Change of Address.—The publishers should be advised of change of subscriber's address about fifteen days before the date of issue, with both new and old addresses given.

Advertisements.—Only articles of known scientific value will be given space. Forms close first of month preceding date of issue. Advertising rates and page sizes on application.

Foreign Depots.—Great Britain—Henry Kimpton, 26 Bloomsbury Way, London, W. C. 1; Australia—Stirling & Co., 317 Collins Street, Modern Chambers, Melbourne.

Nonreceipt of Copies.—Complaints for nonreceipt of copies or requests for extra numbers must be received on or before the fifteenth of the month following publication; otherwise the supply may be exhausted.



S.S. White **PRECIOUS METAL WIRES** *for Arches and Springs*

NO. 61 METALBA—Platinum Color

A high-grade, exceptionally strong, tough, springy wire. No. 61 Metalba is the highest grade orthodontic wire of our manufacture. It is high fusing, and maintains its high physical properties after soldering operations.

\$3.90 per dwt.

GOLD PLATINUM—Gold Color

Gold Platinum Wire has been proving its merits for all types of arches and springs for more than a quarter century. It's easy working, strong, tough, springy, and doesn't "tire" or lose its elasticity while orthodontic treatments are in progress.

\$3.00 per dwt.

NO. 12 CLASP

A high grade wire with physical properties that rival closely those of the highest priced orthodontic wires. It's almost as strong as the strongest, moreover, it is very tough and elastic, and an exceptional arch wire.

\$2.80 per dwt.

S. S. WHITE METALBA BRAND BAND MATERIAL

A high-fusing, non-tarnishing all precious metal, medium hard band material, costing little more than base metal products. It's easy working, tough, and has good strength—sufficient for all orthodontic purposes. Metalba Band Material requires no particular heat treatment. It is high fusing and gold solder of any fineness may be used with it.

\$2.15 per dwt.

ALL MADE IN POPULAR GAGES AND WIDTHS

Prices subject to change

THE S. S. WHITE DENTAL MFG. CO., 211 S. 12th STREET, PHILADELPHIA 5, PA.
